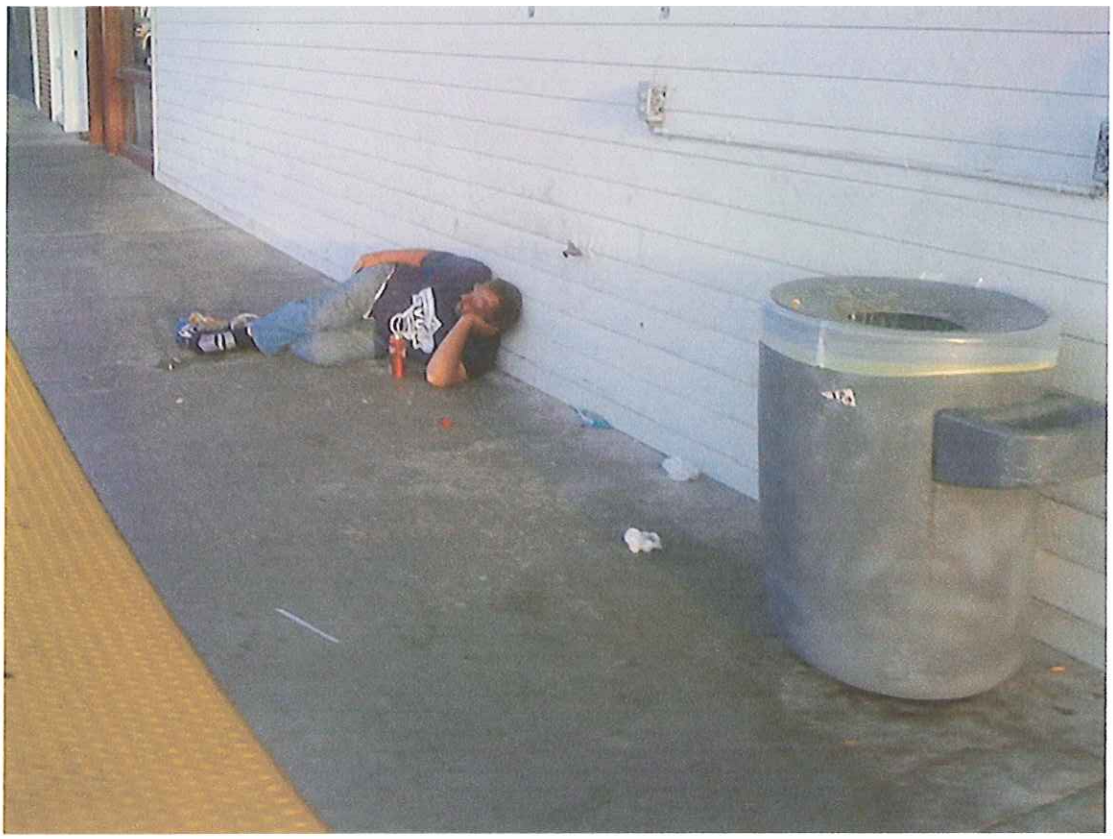
Materials Received
Item No. 4a
Zoning Code Implementation
Review Authority for Alcohol Sales
In-Lieu Parking Fee



A Parking Requirement In-lieu Fee Dedicated to Transit Access In Los Angeles

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Executive Summary

This report updates previous research and expands on the current understanding of in-lieu parking fees, while informing policy-makers about the criteria to develop sustainable parking policies. The research is intended to provide specific recommendations for the Los Angles City Council and other governments on how to effectively implement an in-lieu fee for minimum parking requirements.

The cost of parking affects traffic, urban design and preservation, environmental quality, and housing costs. However, innovative policies such as in-lieu fees have modified parking problems and also improved the social, environmental, and economic foundations of cities. An in-lieu fee policy allows a developer to pay a fee in order to satisfy the minimum parking requirement for a property, rather than construct the spaces required by the city. The subsequent revenue collected by the city is dedicated to a variety of uses such as public transportation and the acquisition and development of public parking structures.

With the intention of contributing to new research relating to parking reforms, the study updates and expands on a previous study by Dr. Donald Shoup on cities currently using in-lieu fees. The updated evaluation of how these cities implement their respective policies is used to analyze Green LA's proposal intended for submission to the City Council titled "A Parking In-lieu Fee for Access: Support for Transit Corridors in Los Angeles." The findings of this report provide recommendations for the criteria necessary for a sustainable and effective in-lieu fee for not only Los Angeles, but also other cities striving to mitigate the negative affects of parking in their cities.

Updating the information on cities' in-lieu fees entailed researching city municipal codes

and zoning ordinances, as well as interviewing planners from each city. The research expands on the original study by looking at how the policy is being implemented in practice in order to recommend ways in which cities can optimize in-lieu fee policies in order to make significant parking reform. Interviews sought to expand on Dr. Shoup's study by evaluating the actual, and not just theoretical, implementation of in-lieu policies by the city and developers. The results show that planners identified benefits and disadvantages similar to those found by Dr. Shoup found in 1996. However developers in most cities do not frequently opt to use the fee for various reasons, which therefore limits the potential benefits that parking reform can bring to cities.

The study concludes with recommendations on how cities can implement an effective in-lieu fee policy. It was found that in cities where the fee was "optional," most developers did not opt to use the fee. Additionally, some cities used the fee only in specific districts. The results affirmed Dr. Shoup's claim that making an in-lieu fee mandatory, rather than optional, enhances the impact of the policy. Many cities only utilized the fee in downtown areas that are already built-out, and therefore experience few new developments that could use the fee. Therefore the study recommends that cities enforce the use of the in-lieu fee throughout various commercial, semi-commercial and mixed-use districts. This will allow the policy to influence new development and gradually dictate the city's relationship with parking and transportation, rather than only be applied to areas where few development changes will occur.

Recommendations include suggestions on the geographic applicability of an in-lieu fee. The study concluded that while most cities defined the area that the fee is used in by the CBD, no city used the availability of alternative transit as a deciding factor in where to apply the policy throughout the city. Therefore essential factors in how people drive and parking, such as buses

and rail likes, were not considered by cities in deciding where the fee should be applied.

Research found that the amount of fee collected varied drastically among the cities. Despite the reasonableness of the fee in some cities, developers did not always use the fee because of the added value parking spaces bring to a property. Therefore planners must understand how developers value the added parking spaces in order to evaluate the cost and benefit to the property of paying an in-lieu fee.

The study revealed that only four of the 24 cities surveyed identified clear shifts in the locations where parking takes place as a result of using an in-lieu fee. These shifts in parking are accredited to using the in-lieu fees and other parking revenues towards developing public parking facilities.

As the Los Angeles City Council considers Green LA's in-lieu fee proposal, "A Parking In-lieu Fee for Access: Support for Transit Corridors in Los Angeles," planners must consider the criteria recommended for an effective and sustainable in-lieu fee policy. The study concluded on three specific recommendations for Los Angeles' in-lieu fee: (1) dedicate revenues to access and alternative parking approaches, (2) define transit nodes and corridors in order to define the policy's geographic applicability and (3) and create a system to evaluate and enforce the level of in-lieu fee usage. Los Angeles can benefit from the in-lieu fee experiences of other cities. However it is essential that the City Council take into account Los Angeles' unique urban environment and assets such as transportation. By adopting an in-lieu fee policy, the City of Los Angeles will take steps towards not only parking reform, but also towards a sustainable transportation system and environment that will result from a city that depends less on automobile transportation and begins to explore alternative access options.

Chapter 1: Introduction of In-lieu Research

"Restore human legs as a means of travel. Pedestrians rely on food for fuel and need no special parking facilities."[1]

- Lewis Mumford

Introduction to a Parking Reform Option: In-lieu Fee

Americans covet ample and free parking, which allows motorists to park their cars without charge 99% of the time.[2] However the cost of "free" parking is hidden in every part of society. While developers and city governments initially pay for parking, the cost is passed along to the rest of society by raising the cost of everything from housing to movie tickets. The cost of parking goes beyond financial issues, affecting traffic, urban design and preservation, as well as the environmental quality of a city. Nationwide, cities have begun implementing innovative policies such as in-lieu fees, which have not only modified parking problems, but also improved the social, environmental, and economic foundations of the cities. An in-lieu fee policy allows developers to pay a fee in order to satisfy the minimum-parking requirement, rather than construct the spaces required by the city. The subsequent revenue collected by the city is dedicated to a variety of uses such as public transportation and the acquisition and development of public parking structures. By reevaluating zoning and implementing an in-lieu fee for parking requirements, cities such as Los Angeles can begin to resolve urban problems such as sprawl, traffic congestion, pollution, disinvestment, and poor urban design.

While most urban cities in the U.S. enforce minimum parking requirements through zoning ordinances, some offer developers alternatives to providing the required number of parking spaces. As cities become more aware of the impact of parking policies, some have

[1] Mumford, Lewis. American Writer, 1895-1990.
[2] Shoup, Donald C The High Cost of Free Parking, Chicago: Planners Press, 2005, p. 4

enacted a fee that can be paid as an alternative to providing the required parking spaces. City zoning ordinances allow developers to pay a fee ranging from $6,000-27,000 per required parking space. In-lieu fees expose the true cost of parking by assigning a cost to each space. In return, most cities use the revenue to develop public parking facilities. However, Los Angeles has the opportunity to direct the revenue towards access and public transportation, rather than escalate the existing and mounting disadvantages of parking.

Los Angeles is behind many comparable cities in parking reform. While leading researchers from Los Angeles have contributed extensively to the discourse surrounding parking policy alternatives and reforms, Los Angeles has yet to adopt a parking solution that not only benefits the city and its residents, but also places Los Angeles at the forefront of progressive transportation policies. While eliminating parking requirements completely would be the ideal policy reform, policy analysts acknowledges that parking reform will be an incremental and gradual process. The principal benefits of an in-lieu fee is the ability to reduce the number of new parking spaces that are developed without significantly altering Los Angeles' existing zoning ordinance.

Review of Current Research

A review of current literature identifies a broad range of research surrounding ways in which cities have sought to utilize parking policies as a means to reduce traffic congestion and the number of drivers on the road. UCLA Urban Planning Professor Dr. Donald Shoup, arguably the leading academic and policy analyst for parking reform, has significantly contributed to research surrounding transportation and land use. His work focuses on the economic and environmental impacts on cities and has led to important reforms. His work related to employer-

paid parking successfully encouraged the passage of California's parking cash-out law, and subsequent changes in the Internal Revenue Code. Much of his research surrounding parking has also contributed to cities charging fair market prices for metered parking, which has led to increased revenues. Most notably, his book *The High Cost of Free Parking*, provides detailed research and recommendations on topics ranging from the creation of parking requirements and the myriad of urban planning problems that result, the circular logic related to planning for parking, the true cost of parking spaces, and alternative solutions such as in-lieu fees, car sharing and eco-passes. In this long (700 pages) and impressive volume, Dr. Shoup clearly outlines how urban planners have failed to acknowledge the impact of parking policies on cities.

While Dr. Shoup clearly leads the research field, other planners, journalists and academics have made notable contributions to parking reform and literature. Topics explored in journal articles include eliminating parking space for residential buildings, market rate metered parking, and the detrimental effects of poorly planned parking in downtown districts. Additionally city planning departments have conducted studies and offered recommendations for parking policy such as the Community Redevelopment Agency of the City of Los Angeles's report "Future Parking Supply and Demand," which provides projections for how city growth will affect the supply of parking in Los Angeles. Governmental agencies such as the Environmental Protection Agency (EPA) also influence city policies through various reports and studies. One such example is the EPA's report "Parking Spaces/ Community Places," which offers an analysis of alternative parking solutions through a best practices survey across the US. While these reports provide planners with valuable assistance, the studies typically do not reflect important factors that vary from city to city,, such as the quality of a city's alternative transportation system. Therefore planners must exercise caution when relying on such reports and consult a variety of

studies to see which are most applicable to the situation being reviewed.

Newspaper articles have provided the means for planners and policy advocates to spread general public knowledge about parking—a subject rarely addressed in politics. Many articles from sources such as The New York Times and The Los Angeles Times have highlighted elements of parking policy reform that can benefit cities such as increased revenue through market priced curb parking and reduced traffic congestion. Popular media such as online and print news draws attention to how a particular city can benefit from parking reform and consequently builds support to pass local reforms amongst residents.

After analyzing research on parking policies and alternative parking solutions, the study focused on a particular solution widely used by many cities, a minimum parking requirement in-lieu. The study therefore collaborated and assisted parking advocates and transportation activists in Los Angeles who have worked towards proposing an in-lieu fee policy to the City Council. The following research uses a proposal by the non-profit, Green LA's transportation working group, as a basis for analyzing current implementation if the in-lieu fee policy.

Current Proposal for Parking Reform in Los Angeles

Green LA Coalition

Green LA Coalition is a group dedicated to providing recommendations and policy research towards achieving environmental and economic justice in the City of Los Angeles.[3] The group is hosted through the Liberty Hill Foundation, from which it receives the majority of funding, and includes a wide array of environmental activists and analysts. Green LA collaborates works with mayoral appointees and provides city departments with environmental expertise that help shape City policies and programs. Currently Green LA's transportation

[3] Liberty Hill. "Green LA." http://www.libertyhill.org/common/publications/Greenla/GREENLA_to_print.pdf>

working group has prepared a proposal for the LA City Council that seeks to use parking policy as a means to reduce car dependency. The proposal, "A Parking In-lieu Fee for Access: Support for Transit Corridors in Los Angeles" addresses the City's problems with parking while supporting alternative transit and access.

Green LA Parking Requirement In-lieu Fee Proposal

Dr. Richard Willson, a professor at Cal Poly Pomona, prepared the parking requirement in-lieu fee proposal proposed by Green LA. The proposal seeks to adopt a parking policy familiar to those of many other cities. While similar to policies of other cities, Green LA's proposal aims to achieve Los Angeles City Council motion CF# 07-2991-S1 for the Planning Department to "explore the feasibility of offering developers in transportation corridors the choice of reducing the amount of parking spaces they must build in exchange for a new Transit System Construction Fee." The proposed parking reform utilizes previously practiced policies to achieve both a solution for parking and for the city's need for investment in transit access.

The proposal defines access as "the full range of transportation options, including driving, carpooling, bus and rail, shuttles, taxies, walking, or bicycling."[4] The flexible use of the dedicated funds reflects the varying access and transportation needs of the different neighborhoods throughout Los Angeles.

Keeping in mind that parking reform cannot be solved through drastic policy shifts, but rather through a gradual reform of the city's transportation structure, the proposal offers options for both the city and developers in the applicability and use of the fee. Additionally, the proposal offers opportunities for participation of city departments and planners, local stakeholders, and

[4] Willson, Dr. Richard. "A Parking In-lieu Fee for Access: Support for Transit Corridors in Los Angeles." Prepared for: *Green Los Angeles*. Draft: January 5, 2009, p. 1

community groups in shaping the specific policy requirements.

For example Green LA's proposal states that development proposals for any land use within one-half mile of a major transit hub may choose to comply with the in-lieu fee to reduce the total parking spaces to be built. Developments may reduce the total required parking spaces by up to 25% without discretionary approval, or must receive Zoning Commissioner's approval if reducing the parking by more than 25%. Therefore the proposal not only allows the fee to be fully optional for developers, it also ensures that communities will not be depleted of their parking stock by requiring the Zoning Commissioner's approval for large parking reductions. Additionally, in the "Parking In-lieu for Transit Issue Paper," Willson identifies key issues for city council considerations that may ultimately change specifics in the policy to best suit the city's different areas. One consideration refers to the discretion as to whether to use the in-lieu fee. The paper states, "developers opting to use the in-lieu provisions could be by right or at the Zoning Administration's discretion based on study or local plan" and that the fee "can apply to a single land use zoning category or all zones in an area."[5] As a result the varied nature of Los Angeles communities can be addressed by incorporating the concerns of different interest groups to achieve a policy that benefits not only transportation but also local communities.

The collection and use of funds, while focusing on access, allows for uses that incorporate transit, pedestrian improvements, and improvements to public on- and off-street parking. The proposal declares "the fees collected are kept in a separate access fund that is dedicated to access improvements within a one-half mile radius of the transit station area."[6] The proposal distinguishes between how funds will be used in areas with more or less than five developments opting for the in-lieu fee. For example in transit areas with give or more developments utilizing

[5] Willson, p. 7
[6] Willson, p. 8

the in-lieu fee in any two-year period, an Access Plan will be prepared by the City Planning and Transportation departments in order to properly "analyze needed transportation improvements and prioritize access improvements such as transit bicycle, walking, shared ride…" in order to cater to the specific needs of neighborhoods while successfully supporting the use of transit, walking, bicycling and so forth.

Other specifics in the proposal include the amount of fee, and the implementation of improvements and programs. To provide an incentive for developers to use the in-lieu fee option, the proposal sets the amount at $20,000 per parking space foregone (substantially less then the current cost of construction per space), which amount is increased on an annual basis. The implementation of improvements paid from the access fund will rely on Access Plans in Transit areas and be tasked to the various city departments such as Transportation, Planning, and Engineering. By emphasizing the varied transit needs throughout Los Angeles along with the need for stakeholder involvement, Green LA's proposal effectively seeks to reform parking in Los Angeles while benefiting the city and supporting access modes.

Summary of Proposal's Analysis

In addition to providing an in-depth explanation of the proposal, Professor Willson provides an analysis of the revenue potential and on-street parking management in the "Parking In-lieu Fee for Transit Issue Paper." By setting the level of development at 2.1 million square feet of commercial development and 1,000 housing units per year, gross revenue from the in-lieu fee can be totaled for different land uses. Retail alone will generate $10,000,000, office $5,000,000, residential $1,875,000, and restaurant $2,500,000 per year.[7] Professor Willson also

[7] Willson, p. 9

points out that on-street parking management must include time and/or pricing changes that increase the cost and availability of spaces. Additionally there must be control over the parking demand in residential districts through such means as permits and time limits.

Research's Contribution to Parking and Access Policy

This report seeks to contribute to parking policy reforms not only in Los Angeles, but nation-wide. By using Green LA's proposal as a foundation for the research, the report expands on how Los Angeles should adopt an in-lieu fee by reviewing how the policy has been utilized in other cities. The report updates Dr. Shoup's 1996 best practices survey of cities using in-lieu policies in order to update the general research on the policies, and to expand on how different criteria has shaped the effectiveness of the policy in various cities. Additionally the report analyzes how by dedicating the in-lieu fee revenue towards transit access, Los Angeles can promote sustainability and alternative transportation while simultaneously reforming the city's parking systems.

Previous best practice studies have highlighted the success of utilizing in-lieu fee revenue or public parking structures and improving urban design by allowing developers to opt out of building parking structures. However the policy varies from city-to-city in the ways in which it dictates parking reform. Therefore the report identifies criteria based on how the policy has been utilized to provide recommendations on implementing sustainable and effective in-lieu policies. The collection of criteria found effective for cities currently using in-lieu fees will not only assist Los Angeles it it's efforts to reform parking, but also other cities seeking recommendations on how to improve their current parking policies.

Chapter 2: History of Parking and US Car Culture:

"When Solomon said there was a time and place for everything he had to encountered the problem of parking his automobile."[8]

- Bob Edwards

As car ownership increased in the mid-1900's and on-street parking became scarce, urban planners in Los Angeles, and many other American cities, established minimum parking requirements. Such policies generally require that each new development provide a minimum number of parking spaces based on the demands related to the specific land use. For example, parking for office buildings is determined by total square footage, while the number of housing units determines residential parking requirements. By providing parking that would satisfy peak demand, urban planners encouraged people to drive more, with the assurance that free parking would be available. An abundance of free parking therefore lowers the market price of parking, which in turn provides a subsidy for parking that inflates the actual demand for parking. As a result, parking demand continues to increase, congesting city streets and creating various urban problems such as congestion and sprawl. Planners then react by requiring ever-increasing amounts of parking. Therefore urban planners have set forth a system where, as Dr. Shoup points out, "Parking requirements are expected to solve the problems they create."[9] Incorporating new policies that begin to reduce the amount of parking required by developers can reverse the cycle of destructive parking policies. By implementing effective parking policies and zoning, Los Angeles can reduce congestion and car use, generate revenue, increase alternative transportation use, reduce pollution, and revive the central business district's economy and urban design by encouraging more pedestrian traffic.

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[8] Edwards, Bob. American Radio Host.
[9] Shoup, "The High Cost," p. 130

Driving and Parking in America

The cost and negative externalities produced from parking, dates back to the emergence of the automobile in American culture in the 1920's. The U.S. was the first country to produce and popularize cars on a large scale. In 1906 the first cars were sold only to the very wealthy. There were few roads and the cars imposed little impact on society. However by 1910 Henry Ford was selling 45,000 cars per year. By reducing the purchasing price he created a 'car for the masses' that even his own employees could afford on a living wage.[10] As cars became more affordable they began flooding the streets, filling roadside spaces previously reserved for horses and bicycles. By the end of the 1920's there were over 20 million cars registered in the U.S. that demanded not only roads to drive in but also space for storage.

The first conflict surrounding traffic in Los Angeles surfaced between the new automobiles and the streetcars, which now had to compete for street access and parking spaces. To address the problem the LA City Council was persuaded by streetcar companies to enact a downtown automobile-parking ban off 300 square blocks during 11am and 6:15pm daily.[11] However a marriage had already formed between key business leaders and the automobile industry. Immediately downtown business interests contested the ban, declaring that it would destroy downtown retailers. Once the short-lived ban was lifted, congestion returned to the urban core, eventually making streetcar transportation impractical by the 1950's.

Other cities experienced similar problems from the influx of automobiles. The first parking requirements were introduced for apartment houses in Columbus Ohio, in 1923, and the parking meter was developed in 1933.[12] By 1946, 70 cities had adopted parking requirements. A decade later with the expansion of the interstate system and a pervasive car culture, most cities

[10] Wolf, Winfried. Car Mania: A Critical History of Transport. Chicago: Pluto Press. 1996, p. 70
[11] Gottlieb, Robert. Reinventing Los Angeles. Boston: MIT Press, 2007, p. 201
[12] Gottlieb, p. 201

had incorporated parking requirements into their zoning.[13] From drive-in movie theaters and restaurants to the development of massive shopping malls, Americans needed more and more places to store their cars throughout the day.

Failure of Transportation Policies

The demand for parking went hand-in-hand with the newly emerging car culture that was driven by a series of federal policies that promoted automobiles and transportation spending for development of highways. The 1950's Federal Interstate Highway Act divided neighborhoods, promoted sprawl and aided in the middle class flight from the urban core. Additionally, low mortgage rates and deteriorating inner cities encouraged middle class families to leave dense cities for the suburbs. This not only created today's problems associated with sprawl, but also developed an economic gap between the cities and suburbs.[14] By encouraging automobile use and requiring ample parking, planners inadvertently continued to increase the demand for parking throughout the twentieth century that cities like Los Angeles are only now beginning to address.

Understanding the failures of how American reacted to the automobile explosion not only aids in solving problems, but also assures that other cities properly design their transportation systems to avoid similar mistakes. The high demand for cars in the twenty-first century has been aided by factors such as low fuel practices, land availability, and new post-war prosperity and consumer culture. The U.S. has the highest vehicle ownership rate in the world, amounting to

[13] Kay, Jane H. "A Brief History of Parking: The Life and After-life of Paving the Planet." Jane Holtz Kay. 20 Oct. 2008.
[14] Gottlieb, Robert, Regina Freer, Mark Villianatos, and Peter Dreier. The Next Los Angeles. Los Angeles: University of California Press, 2005, p. 104 & 134.

771 motor vehicles per 1,000 persons.[15] If trends continue there will be over 4.7 billions cars in the world before the end of the twenty-first century.[16] Therefore the ways in which cities control automobile use will continue to plague planners as problems associated with parking continue to intensify.

Chapter 3: Background: Minimum Parking Requirement

[15] Shoup, "The High Cost," p. 4
[16] Shoup, "The High Cost," p. 6

> *"In the future we will look back at minimum parking requirements as a colossal mistake."*[17]
>
> - Donald Shoup

Minimum Parking Requirement's Negative Destruction:

> *"My father never paid for parking, my mother, my brother, nobody…It's like going to a prostitute. Why should I pay when, if I apply myself, maybe I could get it for free?"*
>
> - George Constaza on Seinfeld

Urban planners across America have created a culture that not only depends on automobiles, but also often requires them. Since 1923 planners have implemented minimum parking requirements for different land uses. The policy requires that developments satisfy a minimum number of off-street parking spaces depending on its size and land use type. Planners determine the number of spaces by factors such as the total square footage, number of units, or other measurements. While planners depend on minimum parking requirements to satisfy parking demand, encourage commerce and reduce congestion—the policy encourages more driving, raises construction costs, and increases traffic. By inadequately calculating the actual demand for parking, the policies force developers to provide an over-abundance of parking with negative costs for society.

Despite cities' strong reliance on minimum requirements, there is little evidence pointing to the origin of the calculation methods. In 1996 Professor Richard Willson surveyed 144 different local jurisdictions' parking requirements. When planners from the jurisdictions were asked about how they set specific parking requirements, the most common answers were "survey

[17] Shoup, "The High Cost," p. 64

nearby cities" and "consult Institute of Transportation Engineers (ITE) handbooks."[18] While ITE publications contain systematic data, the results are often faulted for poor survey methods and inflated calculations.

While planners rely on ITE publications to determine parking policies, the methods used by ITE fail to distinguish between cities and suburbs, leading to impractical parking requirements in urban areas. To identify parking requirements planners calculate the peak demand for parking and subsequently require a supply of at least that amount. ITE reports publish parking generation rates, which is defined as "the average peak parking demand observed in case studies."[19] However the conditions in which the case studies are observed cause inaccurate and inflated generation rates. Peak demand is measured by assuming a supply of free parking, without regard to potential or hidden costs. Data is primarily collected at suburban sites with ample supplies of free parking, and limited public transit.[20] Additionally, Dr. Shoup found that half of the parking generation rates are based on four or fewer studies, and 22 only cited a single case study.[21] The calculations are impractical for use in urban areas where garages and curb parking charge fees. Additionally, the surveys do not provide information on methodology such as the length, location, and time frame of peak demand.

Cities generally provide different parking requirements for specific land uses such as movie theaters, gyms, and apartments. ITE calculates requirements for land uses that are based on trip generation rates, defined as "the number of vehicles trips that begin or end at a land use

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[18] Wilson, R., 1996. Local jurisdiction parking requirements: a survey of policies and attitudes. Working Paper, Department of Urban and Regional Planning, California State Polytechnic University, Pomona, California.
[19] Shoup, Donald. "The High Cost of Free Parking," *Journal of Planning Education and Research,* Vol. 17, No. 1, Fall 1997, p, 4
[20] Institute of Transportation Engineers. 1987. Parking Generation. 2nd edition. Washington, DC: Institute of Transportation Engineers, vii, xv
[21] Shoup, "The High Cost," p. 4

during a given period."[22] Similar to parking generation rates, the surveys for trip generation rates cite only a few studies preformed at sites located in suburbs with free parking. The trip generation rates produced by ITE are subsequently inflated because "vehicle trip demand is higher where the price of parking is lower."[23]

Parking and trip generation rates are not only misleading, but also use related values to express the results. Both rates are expressed per 1000 square feet measurements. However through assessing the variation in rates, floor area accounts for less than 4% of parking generation rates and 7% of trip generation rates.[24] Planners depending on ITE generation rates fail to acknowledge that the data, while appearing scientific, is in fact misleading.

Problems with city parking ordinances can be traced back to the shaky basis on which planners attempt to calculate requirements for different land uses. The circular logic perpetrates impractical requirements as most city planners look at other cities as examples on which to base their requirements. The incorrect assumption that other cities have accurately calculated parking requirements results in repeating other cities' mistakes. As explained, other cities' faulty ordinances result from ITE's inflated *Parking Generation* and unsubstantiated estimates by planners. Without alternatives to ITE's data that appropriately relates peak parking demand to land use, planners choose to base ordinances on what appears to be systematic data. Therefore planners continue to develop parking requirements that fail to accurately reflect the reality of parking for different land uses and local requirements.

The opportunity cost of the land lost to parking, the number of required parking spaces, and the cost per parking space, all determine the financial cost of satisfying the minimum

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[22] Shoup, Donald C, "The Trouble with Minimum Parking Requirements," *Transportation Research Part A,* Vol. 33A, Nos.7-8, September/November 1999, pp. 549-574, p. 553
[23] Shoup, "The Trouble with Minimum Parking Requirements," p. 553
[24] Shoup, "The Trouble with Minimum Parking Requirements," p. 553

parking requirement. The opportunity cost of the foregone land frustrates many developers who would otherwise use the space for a use with higher value such as residences. In dense urban areas such as downtown Los Angeles, where land is less abundant and more expensive, required parking poses a larger financial cost.

In *The High Cost of Free Parking* Shoup asserts that "the cost of all parking spaces in the U.S. exceeds the value of all cars and may even exceed the value of all roads."[25] The actual financial cost of a parking space is important in understanding the implications that parking policies have on urban planning. The cost of providing parking can be found by calculating the estimated cost that each space adds to the development. For example if a parking structure is constructed on land that was previously a surface lot, the number of additional spaces provided by the structure represents the opportunity cost of using the land.[26] However this method values the land as a surface parking lot. If by adding parking spaces sacrifices land that could have been used for alternative uses such as more housing units, or increased office space, the value of the parking spaces increases dramatically.

Most developments in downtown Los Angeles satisfy parking requirements through underground parking, due to the high value and scarcity of land. Through various case studies at UCLA, the average cost for underground parking is $25,000 per space.[27] Using an office building as an example, Los Angeles zoning requires four spaces per 1,000 square feet of floor area. Therefore, multiplying the number of required spaces (4) by the cost of each space ($25,000) produces the total cost of $100,000 for four parking spaces. Dividing the $100,000 cost by 1,000 square feet reveals that the required parking costs $100 per square foot of floor

[25] Shoup, "The High Cost" p. 185
[26] Shoup, "The High Cost" p.186
[27] Shoup, "The Trouble with Minimum Parking Requirements," p. 556

area for an office building.[28] This permits a developer to calculate the cost associated with providing parking for the development. In Los Angeles the average cost of construction is $150 per square foot.[29] Dividing the cost per square foot of parking by the cost of construction per square foot ($100/ 150sq ft) shows that providing parking for an office building in Los Angeles increases the totally cost of the building by 67%.

Minimum parking requirements therefore places the cost of parking on the developers, rather than the drivers. This externalizing of parking costs has continued to provide ample parking, at little or no cost to drivers, which encourages driving, traffic and less public transportation ridership.

City planners have depended on unreliable surveys and trip generation rates to develop zoning ordinances. Despite evidence pointing to the negative effects and impracticality of minimum parking requirements, alternative strategies have been slow to develop. While minimum parking requirements provide parking for employees, consumers, and residents—excess parking increases the number of parking spaces and automobiles in central business districts (CBD). More parking encourages more driving, and in turn produces traffic congestion that adds to pollution.

Traffic Congestion & Disincentive for Public Transportation:

> *"When I get real bored, I like to drive downtown and get a great parking spot, then sit in my car and count how many people ask me if I'm leaving."*[30]
>
> - Stephen Wright

[28] Shoup, "The Trouble with Minimum Parking Requirements," p. 556
[29] Los Angeles County Assessor
[30] American Actor and Writer, b. 1955

Minimum parking requirements have been used as a reactive measure by policy makers to reduce problems associated with traffic congestion and limited on-street parking. Spillover parking occurs when off-street parking cannot satisfy the demand, forcing drivers to cruise looking for a space, and park in nearby neighborhoods. Many planners argue that without minimum parking requirements, drivers would flood neighborhood streets. Therefore to solve spillover issues, planners require developers to simply provide more off-street parking. However, by ignoring the immediate causes of spillover parking, on-street curb parking in the central business district (CBD) has in fact increased levels of traffic congestion, wasted fuel, reduced walkability, and caused automobile accidents.

Drivers are more likely to cruise for parking if it is cheap, off-street alternatives are more expensive, they want to park for a long time, and/or if they are driving alone.[31] Studies in New York City and Los Angeles have reported that cars searching for parking is a major source of gridlock. In a yearlong study it was found that within a 15-block business district, cruising for curb parking resulted in 950,000 extra miles driven, consuming 47,000 gallons of gas that contributed 730 tons of greenhouse gas carbon dioxide.[32] In addition to the environmental and public health effects of pollution, cruising creates traffic congestion, especially at peak times.

Surveys in various cities have noted that "cruising for curb parking generates about 30% of the traffic in central business districts."[33] Traffic problems cannot be solved through urban planning alone—because driving and parking are directly related, solutions must address the economic factors tied to parking. While time and fuel are wasted in the search for on-street

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[31] Shoup, Donald C. "Cruising for Parking," *Transport Policy*, Vol.13, No.6, November 2006, p.480
[32] Au, Ceri. "The New Science of Parking." Time Magazine. TIME. 9 July 2007. <http://www.time.com/time/nation/article/0,8599,1641244,00.html>.
[33] Shoup, Donald C. "Gone Parkin'" The New York Times 29 Mar. 2007: 25

parking, drivers will continue to cruise unless the curb-side meter rate is higher than the price of off-street alternatives.

In most cities, curb parking is less expensive than parking garages, providing incentive for drivers to clog streets while searching for coveted curbside spaces. Shoup examines on- and off-street parking prices in 20 different cities in his 2006 report "Cruising for Parking," in order to examine the incentives to cruise. The study identifies that while the average hourly rate for curb parking was only $1.17, off-street parking averaged $5.88.[34] Cruising ended up saving the most money for drivers in New York City, but only cost drivers in two cities—Palo Alto and San Francisco. Among the 20 cities, curb parking was only 20% of the price of parking in a garage. Shoup points out that people would complain "if long lines of cars regularly spilled into the streets and congested traffic because the lots and garages were always full."[35] However, alternatively, people complain about traffic that results from cities failing to accurately price public curb parking.

Since 1952 various studies have offered economic solutions to reduce congestion through parking reforms in the CBD. In 1996 William Vickery won the Nobel Peace Price for his idea of congestion pricing to relieve congestion in New York City. Cities could raise off-street parking to meet the market price, so fewer drivers would decide to cruise for parking. Shoup supports this idea and argues that market pricing should create an 85% occupancy rate for curb parking so hat drivers willing to pay those prices are able to quickly find available spaces without contributing to traffic. [36] Market priced parking as a solution not only reduces traffic congestion, but also benefits cities and neighborhoods by providing increased revenue.

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[34] Shoup, "Cruising for Parking," p. 481
[35] Shoup, "Cruising for Parking," p.483
[36] Au, Ceri

Revive Pedestrian-Friendly Urban Cores:

> "We suspect that when the density of cars passes a certain limit, and people experience the feeling that there are too many cars, what is really happening is that subconsciously they feel that the cars are overwhelming the environment, that the environment is no longer "theirs,"… When the density goes beyond the limit, we suspect that people feel the social potential of the environment has disappeared."
>
> - Alexander, Ishikawa, Silverstein. *A Pattern Language*

Central business districts (CBD) provide numerous advantages for a city's economic, social, and cultural activities. Downtown Los Angeles's proximity of sports areas, museums, civic centers, office buildings, restaurants, and shopping, offers patrons a variety of resources. However parking reduces density—the very aspect of the CBD that makes it desirable. Parking requirements also discourage walking because drivers can visit multiple locations in the CBD and be assured that parking will be found, rather than parking in a central location and walking or taking public transportation between destinations. Lastly, as new developments supply more parking, and increase construction costs, the CBD becomes overwhelmed with unattractive parking structures that take away from the area's culture and urban design. Richard Voith points out in his study of CBD density and parking requirements that "Effective parking policies, therefore, must strike a balance between convenient parking and maintenance of the dense urban fabric that makes the CBD unique."[37]

As Dr. Shoup points out, "parking requirements are expected to solve the problems they create."[38] Parking requirements create a circular cycle where the decline in urban density leads to an increase in suburban sprawl, which in turn leads to a less lively CBD. As a result there is a

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[37] Voith, Richard. "The Downtown Parking Syndrome: Does Curing the Illness Kill the Patient?" Federal Reserve Bank of Philadelphia Business Review, January/February 1998, p. 4

[38] Shoup, "The High Cost," p. 130

decline in public transit, a rise in car ownership, and lastly an increase in vehicle travel, which fuels the decline of urban density. Due to the importance of density, parking requirements become detrimental to the success of a CBD.

Urban density declines with land designated for parking rather than people, lower transportation costs, and higher construction costs—all of which result from parking requirements. Due to the high value of property in the CBD, parking requirements create disincentives for construction in urban cores. In Los Angeles the parking requirement is uniform across the entire city, regardless of the existing density, transportation access, or the concentration of commercial buildings. As a result, developers are encouraged to seek areas outside of the CBD, where land has lower value, in order to comply with the ordinance.

Parking reform has the potential to renew urban cores and improve the walkability of downtowns. However zoning ordinances, such as Los Angeles's minimum parking requirement, promote the accessibility and availability of parking, over the quality of the urban design. Current parking requirements supply downtown Los Angeles with architecturally mundane parking structures that disrupt the streetscape. The high cost of supplying parking is frequently enough to dictate the architectural quality and urban design of a neighborhood. While ordinances currently specify the amount, size, and even angle of spaces, they do not impose regulations on the design or location of the parking structures.

Alexander, Ishikawa, and Silverstein write in *A Pattern Language* of the dichotomy of cars and humans' relation to their environment. The authors explain that the environment should "create the potential for all social communion, including even communion with the self."[39] However, when the density of cars becomes too great "the environment starts giving them the

[39] Alexander, C., Ishikawa, S., & Silverstein, M. (1977). A Pattern Language. New York: Oxford University Press, p. 122

message that the outdoors is not meant for them…that social communion is no longer permitted or encouraged."[40] In the CBD where the built environment already dominates, it is even more critical to create areas of social interaction outside of buildings. These areas can be created by reducing the amount of parking and reforming the way parking determines urban design. The few cities that prohibit off-street parking, such as in Carmel, California, pedestrians benefit from a unique streetscape with less traffic from cars seeking parking.[41] Without a parking culture, Carmel has been able to preserve its historic culture through architecture and neighborhood design.

A reduction or elimination in parking requirements will help revive central business districts by improving the walkability of streets. Sidewalks become more welcoming without gaps for parking lot entries. Additionally, if each building does not contain its own parking, people will park once, and be forced to walk along the streets to their destinations. The location of parking is also important in accommodating pedestrian life. By avoiding parking structures in front of buildings, lining sidewalks, or even breaks in the sidewalk for cars to enter structures, allows buildings to be oriented to the sidewalk.[42] Access to the street is emphasized, while reducing automobiles' interference with pedestrians. Bringing people onto the streets not only encourages social engagements, but also benefits businesses as the sidewalks bring pedestrians directly to storefronts, rather than to an underground garage.

Urban areas can also reclaim the character of the neighborhood by focusing on design of rather than purely the supply of parking structures. Developers face challenges in creating parking structures that satisfy the parking requirement while simultaneously contributing to the

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[40] Alexander, C., Ishikawa, S., & Silverstein, M, p. 122
[41] Vinit Mukhija and Donald Shoup, "Quantity versus Quality in Off-Street Parking Requirements," *Journal of the American Planning Association*, Vol. 72, No. 3, Summer 2006, p.297
[42] Vinit Mukhija and Donald Shoup, p. 298

area's urban design. Strategies to improve the aesthetics of parking, despite the existing parking requirements, can be achieved through landscaping and creative locations such as dropping the lots below street grade.[43] Unfortunately, as Shoup points out, "private economic incentives for good parking design are weak,"[44] and developers rarely see the design of parking structures as a means to increase the development's value. Therefore most developers supply the minimum required parking at the lowest cost possible—contributing to an unattractive streetscape lacking cohesion.

Other parking reforms that produce revenue for the city work towards revitalizing and improving central business districts. Currently under-priced curb parking has failed to provide benefits to the neighborhoods. Many reason residents in dense areas support parking requirements because of their fear that without an ample supply of parking, spillover will fill their neighborhoods. However if the meters were appropriately priced, and residents were given permits, neighborhood streets would remain free of congestion. Cities that fail to appropriately price on-street parking are not only congesting streets, but also foregoing potential city revenue from increased meter parking prices. By increasing the cost of on-street parking the city could use funds to revitalize the streetscape, returning urban cores to a pedestrian-friendly community.

Los Angeles's greatest example of minimum parking requirement's ability to dictate poor urban design can be found in the famous Disney Concert Hall located downtown. The underground six-level, 2,188-space parking garage cost $110 million to construct—enough to put its financer, Los Angeles County, in debt.[45] While the garage was completed in 1996, the concert hall did not open until 2003. The delay reduced expected parking revenues. As a result,

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[43] Vinit Mukhija and Donald Shoup, p. 299
[44] Vinit Mukhija and Donald Shoup, p. 300
[45] Michael Manville and Donald Shoup, "People, Parking, and Cities," *Access* No. 25, Fall 2004, p. 6

the Disney Concert Hall is required to hold at least 128 concerts each year. One hundred and twenty eight is the calculated number of events needed to render enough parking revenue to repay the debt procured from constructing the garage.[46] Initially the parking facility was built to satisfy poorly planned parking requirements. However now the parking supply determines the concert hall's minimum concert requirement.

The Disney Concert Hall's failure to revive the city's urban core and achieve the original architectural plans continues to exemplify the negative effects of parking requirements. Since developments must provide their own parking, concert-goers enter the hall through the garage, never setting foot on the sidewalk.[47] This way the concert hall fails to benefit central business district by neglecting local restaurants of potential customers. The high cost of parking affected architect Frank Gehry's original design. To save money, the limestone he originally specified was changed to cheaper stainless steel. In order to comply with the city's minimum parking requirement the Disney Concert Hall's over all design and eventual use was determined not by an architect or an orchestra—but by parking.

Parking Requirement's Effect on Affordable Housing:

As housing prices increase and cities move towards promoting high-density urban development, minimum parking requirements have been criticized as posing an obstacle for both affordability and high-density. The concept that parking requirements reduce housing density and increase the cost of housing has existed since the first parking reforms. In 1964 Wallace Smith completed a study of housing costs in Oakland, California. His finding discovered that following the 1961 zoning ordinance for off-street parking, housing construction costs rose 18%.

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[46] Michael Manville and Donald Shoup, p. 6

[47] Shoup, Donald C. "San Francisco and L.A.: Parking Makes the Difference." *Journal of the American Planning Association*, Vol. 71, No.1, Jan 2005, p.37

In addition, the supply of housing decreased by 30% per acre.[48] The report explains that density of housing fell because expensive underground garages were required in order to maintain the same levels of density while supplying the required amount of parking for the ordinance.[49] Also, since the requirement was based on the number of units, rather than square footage, developers preferred to build fewer, larger units. Therefore minimum parking requirement's negative effect on housing supply portrays once again how parking requirements dictate urban planning, design, and finance.

Affordable housing developers, more than any other constituent in Los Angeles, have been most challenged by parking requirements. Advocates for affordable housing claim that complying with parking requirements consumes government subsidies and reduces their capacity to provide housing units and incorporate mixed-use components. The Southern California Association of Non-Profit Housing's report, "Parking Requirements Guide for Affordable Housing Developers" argues that because of the strong correlation between income and vehicle ownership, residents in affordable housing units are less likely to require even one parking space. Additionally, in dense areas serviced by transit, such as downtown Los Angeles, the need for parking among low income residents decreases.[50]

Los Angeles' municipal code provides that in calculating affordable units the "density shall be rounded upwards from fractions of one-half…to allow one additional dwelling unit."[51] Therefore larger dwellings can comply with the same parking requirements as smaller units. However this still requires developers to build parking structures with at least one space per unit.

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[48] Shoup, Donald C. "An Opportunity to Reduce Minimum Parking Requirements," *Journal of the American Planning Association*, Vol 61, No. 1, Winter 1995, p. 25
[49] Shoup, "An Opportunity to Reduce Minimum Parking Requirementsm," p. 25
[50] Dhondrup, Robert. Parking Requirements Guide for Developers. Rep.No. Southern California Association of Non-Profit Housing. 2007, p.3
[51] City of Los Angeles Municipal Code. Chapter 1, General Provisions & Zoning. Section 12.22 A25(d)

The demand for housing in Los Angeles cannot afford to comply with pricey parking requirements. In order to meet population growth expectations, Southern California must build 220,000 housing units a year for the next 23 years.[52] However, as the cost of constructing housing and the required parking rises, minimum parking requirements will start to play a role in determining the region's growth.

Obstacle to Historic Preservation in Los Angeles's CBD:

Developers choosing adaptive use and historic preservation in many of downtown Los Angeles' buildings are confronted with the challenge of satisfying the parking requirement for buildings without existing parking structures. As a result, many historic buildings are demolished or drastically altered in order to comply with current standards. Disincentives to preserve and rehabilitate historic buildings prevent urban areas from maintaining a part of its history through its unique design. For example, downtown Los Angeles' retail district that was destroyed in the 1992 Los Angeles riots has not been successfully rehabilitated due to the inability to accommodate parking. Consequently, the area has deteriorated and remains vacant, subject to high levels of crime for many of the narrow plots.

Parking Requirement's Detrimental Effect on Pollution and Public Health:

Minimum parking requirements provide ample off-street parking, often free of charge. However the external costs for each parking space increases car use, traffic, and subsequently impacts the environment and public health with added air pollution. Los Angeles' air is the worst in the nation, largely due to high car ownership rates and urban sprawl. If the city is to

[52] Dhondrup, Robert, p.3.

achieve its target of reducing greenhouse gas emissions by 35% below 1990 levels by 2030,[53] parking requirements must reflect efforts to reduce the effects of pollution. With this view, public officials must begin to acknowledge parking policies as a public responsibility.

While drivers park for free 99 percent of the time, they are additionally subsidized for the daily cost of commuting to work through employer-paid parking made possible with minimum parking requirements. Since office buildings in Los Angeles are required to provide four spaces per 1,000 square feet of floor area, employees readily use the excess parking. The California Air Resources Board found that employer-paid parking increases gasoline consumption by 33% in downtown Los Angeles. It also increases the parking demand by 34%, which artificially makes it seem that downtown needs more parking. [54]

In areas that employees would have to pay daily parking rates, employer-paid parking also subsidizes the cost of gas and encourages driving that increases pollution. For example, an employee drives 20 miles to work, where garages typically charge an average of $5.64 a day; therefore the subsidy of $5.64 that the employee receives covers the operating cost of a car, including gas, oil, maintenance, and tires.[55]

Urban sprawl and congestion, which can be partially attributed to parking requirements, increase driving time and in turn increase the emissions from automobiles. The external costs of pollution are especially important in Los Angeles where pollution and congestion levels are the highest of any downtown in the world. In cities with less pollution and congestion, the externalities of pollution are lower.[56] By using the South Coast Air Quality Management

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[53] City of Los Angeles, "Green LA: An Action Plan to Lead the Nation In Fighting Global Warming." Mayor Antonia R. Villaraigosa, May 2007, p.3.
[54] Shoup, Donald C., Wilson, Richard. "Commuting, Congestions, and Pollution: the Employer-Paid Parking Connection." Working Paper, no. 120. The University of California Transportation Center, Presented at the Congestion Pricing Symposium; June 1992, p.9
[55] Shoup, "The High Cost of Free Parking," *Journal of Planning Education and Research.*p, 12.
[56] Shoup, "The High Cost," p. 198

District's vehicle emission values, the emissions created by vehicles per space can be calculated for a specific parking structure. Shoup's study of UCLA's 1,500-space parking structure took into account vehicle miles traveled, congestion, and emissions cost per parking space to find the total external cost per parking space of $110.86. The emissions cost per space was calculated to $44 per month.[57] Increasing the number of parking spaces has other environmental impacts that are less easily monetized, such as an increase in storm water runoff, and a reduction in potential green space for oxygen producing plants.

Chapter 4: Reform for Los Angeles

[57] Shoup, "The High Cost" p. 197

Importance of Parking Policy as Public Responsibility

> *"What is the primary purpose of a political leader? To build a majority. If [voters] care about parking lots, then talk about parking lots."*[58]
>
> - Newt Gingrich

In order for cities to view parking as a public responsibility and initiate appropriate reforms, it is essential to identify the importance of parking in dictating how a city functions. Providing off-street parking for each development guarantees drivers convenient and often free parking, and therefore encourages car use. This increase in automobiles on the road is only the start of the problems generated by minimum parking requirements.

Moving away from the impractical nature of parking requirements and towards alternative solutions will contribute by enabling Los Angeles to achieve its overall goals towards growth and redevelopment. While many officials argue that minimum parking requirements are necessary for retail to thrive and employees to commute—they must also evaluate their public responsibility to securing the city's growth and public health. While acknowledging that parking is required for a variety of activities, decision-makers must also account for the variety of needs involved with different land uses and areas. By looking towards alternative parking solutions Los Angeles will be able to provide for the specific parking needs of its neighborhoods and avoid both an over and under supply of parking.

Policies that encourage Smart Growth principals such as compact building design, walkable neighborhoods, alternative transportation choices, and cost-effective development

decisions, are all strategies that benefit cities and lead to a reduction in air pollution. Effective parking strategies also reduce the amount of land consumed by developments and increase the walkability of communities. Most importantly, alternative solutions such as an in-lieu fee generate much needed revenue for a city. In addition to the new revenue, cities will reduce spending as a result of an overall reduction in public health and development funding. Currently Los Angeles's parking policy is a barrier to effective redevelopment in the city. The City Council must understand the potential benefits that an in-lieu fee can provide in order to achieve future goals and ensure the sustainability of the city.

Reform for Los Angeles: Parking Requirement In-Lieu Fee

While other nearby cities such as Beverly Hills, Pasadena, San Diego, and San Francisco have implemented parking policies that limit rather than expand parking, Los Angeles has yet to reform minimum parking requirements that continue to burden the city. In 1996 and updated again in 2002 Dr. Shoup surveyed 24 American cities and various international cities with in-lieu fees. In his survey he interviewed city officials and examined city ordinances and documents to find the benefits and downfalls of in-lieu fees, as well as the specifics such as the fee amount and applicability. The following compares Green LA's proposal to the findings in Dr, Shoup's report.

Benefits of In-Lieu Fee Proposal:

By placing an actual cost for the required parking, an in-lieu fee makes the cost of parking explicit and concrete, forcing developers to confront the reality of constructing parking. Because the in-lieu fee is substantially lower than the in-lieu fee per space, the option provides developers

with an incentive to reduce the number of spaces provided.

Many developers struggle with the high cost of providing required parking. Additionally, as previously explained, parking requirements often hinder the architecture, urban design, and historical preservation of developments. The cost and amount of space required to construct parking often deter developers from achieving their proposed design, such as with the Walt Disney Concert Hall downtown. An in-lieu fee will provide an alternative to constructing large amounts of parking, allowing areas such as downtown to improve the streetscape and urban design.

Developers seeking an adaptive reuse of a historic building will find an in-lieu fee beneficial on properties where providing the required parking would not only be costly but highly challenging. Since the 1992 Los Angeles riots downtown Los Angeles has seen a dramatic disinvestment. While new developments such as LA Live have started to appear, many historic buildings remain. Many of these historic buildings lie on property without parking facilities, making satisfying the parking requirement near-to impossible. However by enacting an in-lieu fee developers would find incentives to reinvest in downtown Los Angeles and preserve the neighborhood's culture and urban design.

The current zoning ordinance in Los Angeles provides developers with the option of requesting parking variances. These variances are granted to developments where parking would be difficult to provide, or too costly, such as in the case of affordable housing developments. When a variance is granted, the developer does not have to pay a fee for the forgone required parking. Alternatively, the city would gain this lost revenue through an in-lieu fee and abandon the administrative process involved in parking variances.

In-lieu fees most commonly benefit cities by collecting funds to purchase, develop, and

maintain public parking facilities in areas central to consumers and employees. By concentrating parking in shared facilities cities avoid many of the previously noted problems associated with parking requirements such as traffic congestion, empty parking spaces, and streetscapes disrupted by garage entrances. Shared public parking creates an efficient use of space because fewer spaces are necessary in order to meet the total demand for parking. For example, in Pasadena, CA, the shared structures cater to business personnel during the weekday, while simultaneously providing parking for shoppers and dinners in the evening and on weekends.

Disadvantages of In-Lieu Fee Proposal:

Dr. Shoup identifies four disadvantages of in-lieu fees in his report, "In Lieu of Required Parking." He explains how a lack of on-site parking, high fees, lack of guarantees for parking, and fewer total parking spaces presented disadvantages for developers in cities that adopted in-lieu fee policy.[59] However the nature of transit oriented developments in Los Angeles, along with directing in-lieu fee revenue to access for transit, the current proposal avoids many of the generalized disadvantages of using an in-lieu fee.

In a survey developers expressed that the availability of on-site parking benefits developments—therefore making an in-lieu fee less attractive, especially in competitive markets. The current proposal addresses this concern by allowing developers to use the in-lieu fee for all or only a portion of the required parking. The policy will not require developers to forgo parking; rather it will give them a cost-effective alternative to constructing a large number of spaces. The fee will be financially beneficial because the amount, currently proposed at $20,000 per parking space, is substantially lowers than the average cost of constructing the required parking. Therefore, while the amount of the fee has been a concern for many developers, the fee

[59] Shoup, "In Lieu of Required Parking," p. 308

in Los Angeles will be optional and set below the current cost of construction, making it a desirable alternative for developers.

Developers also voiced concern about the lack of guarantees over how the fee revenue would be spent. Guarantees over how the fee will be spent can be a disadvantage if a city does not construct enough spaces to satisfy the foregone required parking. If the fee is used improperly or too few spaces are provided, developers will be less likely to utilize the fee. The Los Angeles in-lieu fee proposal specifically designates the purpose of the fee, avoiding any possible shortcomings. For example the proposal states that in transit areas with less than five developments opting for the in-lieu fee in any two-year period will allocate the fees as follows: "50% to transit; 25% to pedestrian improvements; and 25% for improvements to public on- and off-street parking."[60]

Lastly, developers often bring up the reduction in total number of parking spaces that result from adopting an in-lieu fee. The proposal addresses this problem by defining the geographic applicability based on the development's distance from "a fixed rail transit stop, a bus rapid transit stop, or the intersection of two bus lines, one of which is on Metro's 12 minute bus system."[61] Most importantly, by dedicating the fee revenue towards transit access modes, the policy will begin to reduce the overall parking demand through increased alternative transit ridership. Additionally, the proposal requires that developments seeking to reduce parking supply by over 25% must acquire the Zoning Commissioner's approval—allowing for a review of the current stock of parking in order to avoid a shortage.

Los Angeles will be able to move towards reforming parking and encouraging alternative transit by allowing developers an option of opting for an in-lieu fee. The proposal takes into

[60] Willson, p. 8
[61] Willson, p. 8

account concerns voiced by developers—by making the fee optional and monitoring the geographic applicability, the fee will avoid burdening developers and will not drastically alter the current parking sock.

Dedication of Fees Towards Transit Access

Overview of Metro Funding Sources

Los Angeles County's public transportation and transportation planning is chartered by the Los Angeles County Metropolitan Transportation Authority (MTA), which received the majority of its funds from local funding sources. The agency provides services and planning for metro buses and rail, and funds various other transit modes such as the Metrolink train. MTA's funding comes largely from a mix of federal, state, county, and city taxes, in addition to bonds and Metro fare revenue.

It is important to recognize that in 2008 54% of MTA's funding came from local sources, while only 29% came from state and 17% from federal sources. Therefore in order to improve transit access in the region, elected officials must recognize the importance of local funding in furthering alternative transportation opportunities. Most of the local transit funding comes from local sales taxes designated for transportation through Propositions A and C, as well as local revenue bond financing. [62] Beginning in 2009 the State budget allocated $1.4 billion to transportation with 20% towards the Public Transportation Account (PTA), 40% to the State Transportation Improvement Program (STIP), and 40% to local streets and roads.[63]

Most federal transportation funding received by Los Angeles is through the Safe, Accountable, Flexible, Efficient Transportation Equity Act—a Legacy for Users (SAFETEA-LU), which

[62] Los Angeles County Metropolitan Transportation Authority. "2006 Metro Funding Sources Guide." Prepared by: Regional Programming Unit, 2006, p. 5

[63] Los Angeles County Metropolitan Transportation Authority, p. 6

authorizes funding for highways, transit, and safety enhancement. The dedication of these funds is a result of the latest version of The Highway Bill that has historically been exclusively highway focused. While the California receives Federal transportation funds, most are dedicated to the State Highway Account, rather than to local transit improvements.

The table blow lists the specific expenditures from each local funding source that contributes to public transportation or transit access in LA.

Local Funding Source (description)	Annual Amount (millions)	Annual Amount Dedicated to Transit Access	Uses for Funds
Prop A (sales taxes)	$620	$147	Public transit programs
Prop C (sales taxes)	$620	$122	Public transit (general)
Transportation Development Act (state sales taxes)	$315	$6	Bicycle and pedestrian facilities
Fare Revenues (MTA fares)	$379	$275	General Metro operations

(MTA Funding Sources 2006)

An analysis of local funding shows that sales taxes and MTA fares are the only local sources dedicated to purposes related to public transit access. Currently major local funding from sources other than sales taxes are from the MTA general revenues from fares, advertising, and leases. However most of these fare revenue funds are dedicated general public transit operations that are largely consumed by operating costs rather than access improvements. As a result, of the

$3.4 billion budgeted for MTA in 2009, only $98 million comes from local non-fare revenues—only 2.9% of the agency's resources.[64] However these local programs, such as the HOV Violation Fund, may contribute to public transportation, but largely fail to address issues of access to alternative modes such as bicycling and walking.

Other Transportation Funding Sources

Like many cities, Los Angeles requires developments that will result in significant transportation impacts to implement mitigation strategies. However the city only receives direct revenue from these impacts in certain parts of the City, and the fees are not dedicated directly to transit access. As Willson explains in the Green LA proposal, other cities dedicate similar fees towards transit and transit access. For example San Francisco imposes a Transit Impact Fee on non-residential uses, whose funds are directed towards capital and operating costs of transit services in the city. Portland, Oregon uses a similar fee called the Transportation System Development Charges, which goes towards improvements relating to motor vehicles, transit, bicycles, and pedestrian access.[65] Development fees that improve transit access will simultaneously mitigate transportation problems while reforming the relationship between cities and alternative transit.

Impact fees in Los Angeles exist to mitigate problems resulting from new developments but are only implemented in certain parts of the City, and even then the fees often fail to progressively reform use of transit in the City. When applicable, the Los Angeles Department of Transportation (LADOT) refers developers that project significant transportation impacts to the

[64] "Metro.net | Facts at a Glance." Metro.net | Transit Services and Information for Los Angeles County. 23 Apr. 2009 <http://www.metro.net/news_info/facts.htm>
[65] Willson, p. 5

Department of City Planning, which then recommends mitigation solutions such as transit and pedestrian movements, and trip reduction measures. These mitigation techniques may result in improvements for transit access, however they may also be used for general transportation uses such as street signage and traffic lights. Alternatively, by allowing developers to use an in-lieu fee, the City will guarantee that access improvements reflect the changes in the area's parking supply (due to the new development's use of the in-lieu fee) and therefore promote alternative transportation modes.

Chapter 5: Update of Research on Cities Using In-Lieu Fee

Explanation of Research Methods

This report updates previous research and expands on the current understanding of in-lieu fees, while informing policy makers about the criteria to develop sustainable parking policies. Dr. Shoup surveyed 47 cities in 1996 in order to assess the benefits and disadvantages of in-lieu fees and how the policy was being implemented in the United States, Canada, Germany, South Africa, Iceland, and the United Kingdom. The following research updates and expands upon Dr. Shoup's evaluation of 24 US cities that were surveyed thirteen years ago. Updating the information on cities' in-lieu fees entailed researching city municipal codes and zoning ordinances, as well as interviewing planners from each city. The research expands on the original study by looking at how the policy is being implemented in practice in order to recommends ways in which cities can optimize in-lieu fee policies in order to make significant parking reform. The results show that planners identified similar benefits and disadvantages to in-lieu fees that Dr. Shoup found in 1996, however developers in most cities do not frequently opt to use the fee for various reasons and therefore limit the benefits that parking reform can bring to cities.

By conducting original research to obtain data, the report expands on Dr. Shoup's previous study and offers an assessment of how implementation has taken place and the fee's effectiveness in reforming the way parking takes place in cities. All of the 24 US cities surveyed had in-lieu fees at the time of Dr. Shoup's 1996 study, therefore the cities were ideal to

reevaluate for this study because of their long history of using this particular policy. Each city, despite the magnitude at which the in-lieu fee is utilized in practice, was able to offer insight on the various changes resulting from adopting the policy over a decade ago. Interviews with city planners provided knowledge on their city's individual use of the fee, but also of the policy's potential, whether achieved in that city or not. Interview questions sought to expand on Dr. Shoup's study by evaluating the actual, and not just theoretical, implementation of the policy by the city and developers. In addition, interviews offered insight on the tangible benefits achieved since the adoption of the policy.

In order to provide information for cities such as Los Angeles, which do not currently use an in-lieu policy, the study focused on identifying key criteria recognized by planners as advantageous and disadvantageous to the city. Data such as how the fee is utilized by developers, and the applicability of the fee to different land uses can provide lessons on how Los Angeles as well as other cities can construct sustainable parking policies that ultimately seek to reduce the overall footprint of parking. The resulting analysis, which includes policy critiques and data accumulated through open-ended interviews with various city planners, evaluates policy criteria to assist in developing and reforming in-lieu policies throughout the United States.

List of Case Study Cities

Berkeley, CA
Beverly Hills, CA
Carmel, CA
Claremont, CA
Concord, CA
Culver City, CA
Davis, CA
Hermosa Beach, CA
Lafayette, CA
Manhattan Beach, CA
Mountain View, CA
Mill Valley, CA
Palm Springs, CA
Palo Alto, CA
Pasadena, CA
San Francisco, CA
San Rafael, CA
Walnut Creek, CA
Orlando, FL
Montgomery County, MD
State College, PA
Lake Forest, IL
Kirkland, WA
Chapel Hill, NC

The following chart displays general information on how in-lieu fees are currently being implemented in the same 24 cities that Shoup initially surveyed in 1996. The information was obtained through city zoning ordinances and interviews with city planners (information on where to find municipal codes and zoning ordinances for each city is provided in the appendix).

Case Study Cities' Use of In-lieu Fee

CITY	POLICY WIDELY USED?	SPECIFIED AREA?	OPTIONAL?	SHIFT IN LOCAL OF PARKING?	HOW HAVE FEES BEEN APPLIED?	SOURCE OF TRANSIT ACCESS FUNDS
*[1] **BERKELEY**	No	Yes, "parking districts"	Yes	No	Program on hold until nexus study is complete	Parking tax for general muni uses
	Other:					
BEVERLY HILLS	No, only for small # of spaces	Yes	Yes, with approval	No, not from fee, but generally more underground garages	Parking enterprise fund- city owned parking structures	
	Other: Saves and accommodates the use of historic buildings while still supporting the business community. Challenge- limited parking, high demand					
CARMEL	No (no developments occurring)	Yes Commercial districts	Yes	No, but if used more it would shift	Sufficient fees have not been collected to implement a community parking project	Regional impact fee (collected by county)
	Other: Fee has helped protect historic/ important buildings from being demolished in order to construction parking facilities					
CLAREMONT	No	Yes, village only	yes	Yes, shared lots	Towards more parking lots, not used in a while	Transportation impact fee
	Other:					
CONCORD	No (downtown built out)	Yes, CBD	no	Moderate	Structures already built. Not sure.	Transportation mitigation fee
	Other: Fee amount only $1,572 (not updated since 2004)					
CULVER CITY	No	No	Yes	No	No used because it wouldn't be enough to build structure	
	Other: No one has used the fee since the 1980's, and the city does not encourage it because the city could not collect enough money from the fee to build a shared lot.					
DAVIS	Yes	Yes, commercial district	Yes	Fee pre-dates other shared garages in the downtown	Potentially will be used to build new garages- current debate	?

	Other: The amount of fee depends on the use and encourages retail by lowering amount of particular land uses. Private and city-owned garages are widely used already in downtown.					
HERMOSA BEACH	Yes (land use changes)	Yes. Only downtown parking zone	Yes (some exceptions)	No (study conducted, structures planned…$)	Accumulating to fund parking structures	Impact fees towards access
	Other: Amount of fee is very high					
LAFAYETTE						
MANHATTAN BEACH	No	Yes, Downtown	Yes (if lot exceeds 1:1 ratio?)	No	Not yet applied	
MILL VALLEY	No (built out)	Yes, Commercial district	No	No sure- some shared lots	No yet applied	
	Other: fee amount expensive $9,000 per space					
MOUNTAIN VIEW	Yes	Yes, Downtown parking district	No, Required for most, rarely "opted' into	Yes, allowed construction of city garages	Used to develop shared garages along with other parking revenue	T.O.D. building permit fees and transit impact fees
	Other: Fee has been used to reward reduction of parking and to preserve and accommodate small sites. Historic core of downtown has older narrow lots that cannot accommodate parking.					
PALM SPRINGS	No	Yes, CBD	Yes (not encouraged)	No	Constructed minimal surface lots	Impact fee
	Other: Downtown needs more parking in order to meet traditional parking requirement					
PALO ALTO	No	Yes (any parking assessment districts)	Yes			

*[2]**PASADENA**	Yes (Zoning Parking Credits)	Yes, different parking districts	Yes, property owners make contracts with city	Yes	Centralized shared garaged	Prop A & C funds, portion of the City's TR/TIF fee (collected new developments
*[3]**SAN FRANCISCO**	No-not in use	Yes, CBD	No	Yes	N/A	Impact fee
*[4]**SAN RAFAEL**	No	Yes, downtown parking assessment district	Yes, requires city approval	No	No	
	Other: Some parking is already providing by the city. The City of already a built-out environment. Fee does not present developers with an economic incentive.					
WALNUT CREEK	No, only for small additions for businesses in CBD	Yes (Pedestrian retail zoning district)	Yes- gave flexibility to the city and developers	Downtown is already compact, parking is still difficult- getting in and out of garages (congestion), not enough spaces	Centralized shared garages (5 in downtown area)	Traffic impact mitigation fee (new developments)
	Other: Benefits small property owners by allowing them to improve their buildings and meeting parking requirements. City has been reducing minimum parking requirements for downtown area, developments in proximity to transit, and for low income and multifamily residential uses. Fee recently raised in order to include money for land costs: $60,000					
ORLANDO		Yes (within downtown parking program)				
MONTGOMERY COUNTY	No	Yes (in parking lot districts in the 4 CBDs)	Yes	Shift not direct result of fee, but of city-owned facilities. In-lieu promotes city's policy perspective	Towards public, shared facilities (significant revenue source)	Impact Fee and incentives for private sector to provide mitigations

	Other: City faces challenge in not over-burdening public parking structures in CBD. Developers outside of parking lot districts can reduce parking through mitigations such as shuttle services. City adopting parking maximums in near future. Challenges- new residential rental developments want parking on-site, employee parking on site despite metro services, fee/tax is very high (if reducing parking by 60-100% the same flat fee applies).					
STATE COLLEGE	No (rare)	Yes	Yes	No, but reinforces philosophy of shared lots	Off-set costs of small (220 space) parking deck and purchase site for new lot	
	Other: The policy has allowed small businesses to thrive and expand downtown					
*[5]**LAKE FOREST**	No	DID NOT KNOW ABOUT IT. Yes- CBD		No		
KIRKLAND	No (program on hold)	Yes, CBD	Yes	No impact	Parking lot under library	Real Estate development impact fees
	Other: Parking policy reforms are shifting towards market priced parking on-street & in lots					
CHAPEL HILL	No (not used for 20 years)	Yes, town center zoning district	Yes	No	No	

Some information could not be attained at the time of the research. Additionally, at the time of the study the following cities used alternatives to in-lieu fees to manage parking policy. Some of the programs are essentially identical to the in-lieu fee, while other cities, such as San Francisco, have implemented alternative strategies. These alternative programs are described briefly below, for more information, locate the city's municipal zoning ordinance located online.

*[1] Berkeley, CA: The city uses the fee, however the program is on hold because the districts have not completed a nexus study. However when completed the districts will establish a parking fund to develop public parking.

*[2] Pasadena, CA: Referred to as "Zoning Parking Credit Program," which is limited to certain parts of the city (commercial districts), and requires that property owners sign a contract with the city for each development or use. Revenue from the ZPC fees gets credited into parking funds for the appropriate district.

*[3] San Francisco, CA: An in-lieu fee policy does not exist in the zoning ordinance, as of Spring 2009. Off-street parking is not required in the downtown, parts of Chinatown, and for various residential uses. However a parking tax is used to maintain centralized public parking facilities.

*[4] San Rafael, CA:

*[5] Lake Forest, IL: Referred to as "Parking Development Payment" (PDP) that is paid if the shortage of parking exceeds 20%

Quick View of Results:

- At least 9 of the 24 case study cities currently do not utilize the policy

- The policy is widely used in 4 of the 24 case study cities

- The policy is optional for at least 17 of the 24 case study cities

- The policy is used only in a specified area/zoning district in 23 of the 24 case study cities

- 5 of the 24 case study cities have experienced a shift in where parking takes place as a result of the in-lieu fee

- 10 of the 24 cities have applied the fees towards alternative parking solutions (i.e. shared parking facilities)

Chapter 6: Findings: Recommendations for an In-Lieu Fee

Evaluation Criteria For a Sustainable and Effective In-lieu Fee Policy

The following provides information for policy analysts and city planning agencies on how to best implement an in-lieu fee policy to achieve the highest level of parking reform. An analysis of the results of use of in-lieu fees by various cities corroborates the arguments made by Dr. Shoup in his previous in-lieu fee studies. The experiences of those cities are also instructive in providing specific criteria essential in implementing a sustainable and effective in-lieu fee policy.

Frequency of Use and Implementation (for specific zoning categories)

While Dr. Shoup's 1996 study asserts that each city profiled in the study utilized an in-lieu fee, interviews with planners from those cities found that despite the presence of the policy in each city's zoning ordinance, the policy is not always implemented in practice. This information expands on Dr. Shoup's argument that making an in-lieu fee mandatory rather than optional enhances the impact of the policy on shared parking, urban design, and commercial districts with continuous shop fronts.[66] Updated research found that in cities with few or no new developments, the in-lieu fee had an insignificant impact. However, in cities with new developments, such as Palm Springs, California, the fee was generally unused when made optional to developers and/or the city's planning commission.

Many of the cities contain CBD's that are built-out and therefore do not experience many new developments needing to comply with the minimum parking requirement. For example in Mill Valley, a small town north of San Francisco, the village-style downtown cannot expand

[66] Shoup, "The High Cost," p. 236

further. Therefore the fee is only used when a property owner dramatically changes the use of a property. Businesses changing to bars or restaurants are the most common change that will force a property owner to pay an in-lieu fee.

The research also found that an overwhelming majority of the cities allowed developers to opt to use the in-lieu fee by right, rather than by the planning commissioner's or zoning administrator's discretion. The cities that required developers to use the in-lieu fee did so only in commercial districts, such as in Claremont, California. However some cities such as Beverly Hills and Culver City, apply the in-lieu fee policy to multiple districts where it is optional and often contingent upon the city's approval. In these cities developers more frequently opt to use the in-lieu fee. Requiring an in-lieu fee only in a built-out downtown area does little to reform the current parking habits. But utilizing the in-lieu fee throughout a city's various commercial, semi-commercial and mixed-use districts, allows the policy to influence new developments and gradually dictate the city's relationship with parking and transportation.

Geographic Applicability

All 24 cities surveyed chose to restrict use of in-lieu fees to specific zones or districts. Some cities defined the geographic areas by commercial districts or CBD, while others used zoning definitions such as special parking districts. For example, Palo Alto, California uses parking assessment districts to differentiate between parking requirements in different areas such as the downtown assessment district and the University Avenue assessment district.[67] Regardless of how cities classified the areas for in-lieu fee use, no city used availability of transit as a deciding factor. The availability and type of transit that may be accessed in a certain area, by nature, dictates the demand and necessity for parking. Therefore the frequency of transit modes

[67] City of Palo Alto "Parking in Palo Alto," http://www.cityofpaloalto.org/depts/pln/transportation/parking.asp.>

such as buses and rail lines should play an essential role in determining whether in-lieu fees should be applied in a particular district. However, currently the majority of cities evaluate the need for in-lieu fees based on the concentration of businesses in a certain zoning district. By continuing to apply in-lieu fees this way cities will fail to promote alternative transportation because commercial areas will be fully supplied with public shared lots rather than metro stops.

Amount of Fee

Despite expanding the geographical applicability of the policy, if cities do not require developers to comply with the in-lieu fee, many developers opt instead to comply with the traditional minimum parking requirement because of the potential benefit the parking spaces will bring to the development. Therefore if the fee is made optional planners must factor in the potential benefit that the parking spaces will bring to the property, in addition to the land and construction costs. In cities such as Los Angeles parking spaces are valuable commodities that can generate substantial revenue. Therefore in setting the amount of the fee, planners must consider the added value that the parking spaces bring to a development. If an optional fee is too high, the developer is more likely to build the parking spaces. While the amount of the fee may dictate the developer's discretion as to whether to use the fee, many planners explained that because of infrequent use, the fee had not been adjusted for many years. It is important to note that the cities examined vary widely in land, construction, and development costs. It is therefore challenging to accurately gauge the influence that the amount of fee plays in determining if developers opt to pay the fee. If the fee is mandatory rather than elective, the city does not need to be as concerned about the level of the fee since the cost of the fee versus the benefit of incremental parking will not be relevant.

Collection of Fee

Of the cities interviewed that regularly collect in-lieu fees, uniform and previously set fees prove the most efficient for developers and city administrators.

Use of Funds: Effectively Shift Where Parking Takes Place

Only four of the 24 cities surveyed identified clear shifts in the locations where parking takes place as a result of the in-lieu fee. All of the four cities achieved this shift by using the in-lieu fees and other parking revenues to help finance the construction and development of public parking structures or shared lots. While the majority of the other cities also had public parking structures, they were not a direct result of the in-lieu fee, but rather parts of other strategies to include shared parking in commercial districts—often prior to the city adopting an in-lieu policy.

The cities of Mountain View, Beverly Hills, and Claremont, California offer insight on how funding directed towards shared parking can encourage small businesses and historic preservation, as well as centralize parking in a small downtown. City planners from Mountain View acknowledge that the fee allows the city to preserve the historic downtown core that has small, narrow lots that would not be able to otherwise accommodate the minimum parking requirement. Similar to Mountain View, Claremont's historic village area is pedestrian friendly as a result of the shared lots that were built using in-lieu fees. The village area is similar to a traditional main street and contains many small retail shops and restaurants. While in-lieu fees are generally only used in Claremont when a property changes land uses, the fees have been used to develop the village's shared lots. These shared lots have been a part of the village area for many years, and because of the in-lieu fees, the city has had a source of funds to maintain and expand the parking facilities.

Planners in Beverly Hills also remarked on the fee's ability to accommodate the use of historic buildings for businesses and avoid hindering customer access. The fee has been especially beneficial here where business interests are a strong consideration in city planning. However by using an in-lieu fee Beverly Hills has been able to provide public parking in city-owned structures through the Parking Enterprise Fund, of which the in-lieu fee is part.

Recommendations for Los Angeles City Council

Define Appropriate Geographic Applicability

To accurately evaluate the extent to which a property requires parking, the city must define transit nodes and corridors, as well as other districts that will benefit from in-lieu fees and revenues towards access. In these areas, such as a commercial district, the City may choose to require a certain level of reduction of parking spaces through the in-lieu fee. Another option, rather than making the in-lieu fee required, would be to provide increased incentives for developers using the in-lieu fee for properties in the defined areas. Professor Willson suggests an example for a transit node defined as a "½ mile radius of fixed rail transit stop or a ½ mile radius of a major bus stop with a service frequency over a defined level."[68] Areas heavily served by transit will provide the first opportunities to implement in-lieu provisions, as these areas can already accommodate alternative transit users. Identifying these areas will also encourage developers to include transportation mitigation strategies at properties because people using the property will be less dependent on on-site parking facilities. Lastly, identifying transit nodes and corridors will provide information to the Department of City Planning on areas that lack proper access and alternative transit systems. Other areas that are by nature less difficult to define are

[68] Willson, p. 7

commercial and historic districts. As explained earlier, commercial districts and historic areas are disadvantaged by minimum parking requirements and should be immediately targeted by the policy to being parking reform and to improve urban design.

Evaluate and Enforce The Level of In-Lieu Fee Usage

In order for Los Angeles to reform parking policy and encourage public transportation, an appropriate in-lieu fee policy must be developed and widely used. The policy must take into account how other cities have enticed developers to opt for the in-lieu fee, so that the policy has substantial impact in where and how parking takes place. As previously established, the amount of the fee does not always dictate how developers utilize the fee. The study also concluded that many cities only need the in-lieu option in certain districts such as the CBD, and for practical reasons prefer to maintain traditional parking policies in residential areas. Therefore the policy should not be implemented universally city-wide and also must consider current parking and transportation stock in certain areas to evaluate whether the City or the developer should be given the option to chose when to use the fee.

While developers react to incentives, the value of future parking spaces may outweigh the financial benefits of an in-lieu fee. Therefore Los Angeles must create a way in which the city's Zoning Administrator can evaluate use of the fee based on the transportation needs of the area where the property is located. Requiring developers to complete a Transportation and Access study, or similar report, would allow developers initial discretion to opt to use the in-lieu provisions. However, by providing a study to the Zoning Administrator, planners will be able to either approve or deny the developer's request—therefore either requiring or denying the developer use of the in-lieu fee. This decision would be based on the City's long-term plans

related to urban design and public transportation, rather than each individual developer's conclusion on the value of additional parking to its project.

Collect Revenue for Access and Alternative Parking Approaches

In recent years Metro has experienced financial difficulties due to revenue loss and various legislation banning the use of specific funds towards transit improvements. Without implementing an in-lieu fee, the City will have to depend on traditional funding sources that have proven to be largely dedicated towards mass transit improvements such as subway lines. An in-lieu fee will allow Los Angeles to create a local revenue source that will guarantee the capital required to make access improvements and fund alternative parking approaches.

The report showed that cities are able collect significant revenue from in-lieu fees. For example, in Montgomery County, Maryland, the revenues collected help fund the development of city-owned parking facilities. As a result the parking facilities generate additional revenue for the city from its daily operations. In areas of Los Angeles such as the Central City, centralized city-owned lots will generate revenue for the city, as well as accommodate properties that reduce the number of off-street parking spaces they provide. Similarly, if Los Angeles dedicates even a portion of the fees towards access, the improvements in access will encourage alternative transportation use. This will generate additional MTA fare revenues that will contribute to the expansion of alternative transportation in Los Angeles. These improvements, while often small in scale, will begin the process of promoting access to alternative transportation options that have so far received limited funding.

Chapter 7: Recommendations For Future Research Opportunities

While many assume that ubiquitous free parking exists to benefit drivers, employees and businesses, the ramifications of poor parking policies in cities have not only encouraged driving, but also pose challenges in areas such as urban design, historic preservation and traffic in CBDs. The research identified that many cities, while using in-lieu fees, do not enforce the policy to its full extent, and therefore do not reap the potential benefits such as reduced traffic congestion and increased use of public transit. Therefore research that will contribute to expanding the understanding of how cities may better utilize parking reforms will aid in effectively reversing the effects of minimum parking requirements.

Future research should address the barriers cities face in effectively implementing parking reforms. Examining issues such as strong business lobbies, high parking demand in CBDs and insufficient public transportation systems may offer insight on how to better implement parking reforms. In order for cities to succeed in comprehensive parking reform, research is needed to evaluate the effectiveness and sustainability of alternative parking solutions such as market-rate meter parking, maximum parking requirements, and car-share and parking cash-out programs.

While alternative policies offer hope for urban parking problems, true reform will not be achieved without policies that expand and promote access and ridership of alternative transportation modes. Further studies on how cities can fund alternative transportation will benefit local governments that lack such support. While most cities fund transportation projects through development fees, other sources of revenue such as increased metered parking may benefit cities in need of public transportation but facing low development rates and large fiscal deficits.

Policies such as in-lieu fees are often controversial and depend on the support of policy-makers. However, development strategies that encourage alternative transportation and mixed-use developments depend less on city policy initiatives and more on creative development strategies and research. Therefore research that explores Smart Growth and transit-oriented development strategies will further efforts to eliminate the destructive effects of free parking and promote urban revitalization. In Los Angeles, recent transit-oriented developments offer opportunities to identify effective strategies that reduce parking demand and revitalize the city's urban core.

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In Lieu of Required Parking

Donald C. Shoup

No version of the system ever quite withstood the test of additional refined observations. - Thomas Kuhn

Americans learn about free parking early, when they play *Monopoly.* Players buy property, build houses and hotels, pay rent, or go to jail at a toss of the dice – but in one toss out of 40 they land on "Free Parking."[1] When they grow up and drive cars, the odds of landing on free parking increase dramatically; American motorists park free for 99 percent of all their trips.[2]

If motorists don't pay for parking, who does? Initially, developers pay for parking. Providing all the spaces necessary to meet minimum parking requirements in zoning ordinances raises the cost and reduces the density of development. The cost of parking is then shifted into higher prices or lower values for everything else – so everyone pays for parking indirectly. Residents pay for parking through higher prices for housing. Consumers pay for parking through higher prices for goods and services. Employers pay for parking through higher office rents. Workers pay for parking through lower cash wages. Property owners pay for parking through lower land values. Because motorists park free for 99 percent of all trips, only in our role as motorists do we *not* pay for parking. Everyone but the motorist pays for parking.

Minimum parking requirements in zoning ordinances collectivize the cost of parking, while market prices for parking individualize this cost. Unless the price of parking gives motorists an incentive to economize, the cost of parking does not influence decisions on whether to own or drive a car. With the cost of parking hidden in the prices of other goods and services, people cannot choose to pay less for parking by using less of it.

Parking requirements generally hide the cost of parking within the cost of development, but in one case this cost is explicit: Some cities offer developers the option of paying a fee in lieu of providing the required parking. For example, Palo Alto, California, allows developers to pay the city a fee of $17,848 for each required parking space that is not provided. The city then uses the revenue for public parking spaces to replace the private parking spaces that developers would have provided.

In this paper, I use cities' in-lieu fees to estimate the developers' cost of complying with parking requirements. I then examine another promising in-lieu option: *allow developers* to *reduce parking demand rather than increase the parking supply.* Examination of an Eco Pass program in California shows that paying the transit fare for commuters who arrive by bus costs far less than providing the parking required for commuters who arrive by car.

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ABSTRACT

Some cities allow developers to pay a fee in lieu of providing the parking spaces required by zoning ordinances, and use this revenue to finance public parking spaces to replace the private parking spaces the developers would have provided. This paper presents a survey of in-lieu programs in 46 cities in the United States, Canada, the United Kingdom, South Africa, Germany, and Iceland. These in-lieu programs reduce the cost of development, encourage shared parking, improve urban design, and support historic preservation. The in-lieu fees also reveal that the cost of complying with minimum parking requirements is more than four times the cost of the impact fees that cities levy for all other public purposes combined. The high cost of required parking suggests another promising in-lieu policy: allow developers to reduce parking demand rather than increase the parking supply. Examination of an Eco Pass program in California shows that reducing parking demand can cost far less than increasing the parking supply.

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■ A Survey of In-Lieu Parking Programs

I have surveyed the in-lieu parking programs in 46 cities: 24 in the United States, seven in Canada, six in the United Kingdom, six in Germany, two in South Africa, and one in Iceland (see Table 1)[3]. The ordinances and supporting documents for the in-lieu programs were examined, and officials who administer the programs were interviewed. The survey results are summarized in three sections: (1) the advantages and disadvantages of in-lieu fees, (2) how cities set the fees, and (3) issues that arise in administering the programs.

Advantages of In-Lieu Fees

Officials in the surveyed cities reported that in-lieu fees have five major advantages for both cities and developers.

1. *A new option*. In-lieu fees give developers an alternative to meeting the parking requirements on sites where providing all the required parking spaces would be difficult or extremely expensive.
2. *Shared parking*. Public parking spaces allow shared use among different sites where the peak parking demands occur at different times. Shared public parking is more efficient than single-use private parking because fewer spaces are needed to meet the total peak parking demand. Shared parking also allows visitors to leave their cars parked while making multiple trips on foot, and is one of the easiest ways to make better use of scarce urban land.
3. *Better urban design.* Cities can put public parking lots and structures where they have the lowest impact on vehicle and pedestrian circulation. Less on-site parking allows continuous storefronts without "dead" gaps for adjacent surface parking lots. To improve the streetscape, some cities dedicate the first floor of the public parking structures to retail uses. Developers can undertake infill projects without assembling large sites to accommodate on-site parking, and architects have greater freedom to design better buildings.
4. *Fewer variances*. Developers often request parking variances when providing the required parking would be difficult. These variances create unearned economic windfalls, granted to some but denied to others. If developers can pay cash rather than provide the required parking, cities do not have to grant parking variances and can therefore treat all developers consistently.
5. *Historic preservation.* In-lieu fees allow adaptive reuse of historic buildings where the new use requires additional parking that is difficult to provide. The in-lieu policy therefore makes it easier to preserve historic buildings and rehabilitate historic areas.

Disadvantages of In-Lieu Fees

Officials in all the surveyed cities recommended in-lieu fees, but some reported that developers were at first skeptical of them. The following four points summarize the potential disadvantages mentioned by developers.

1. *Lack of on-site parking.* Parking is a valuable asset for any development. A lack of on-site, owner- controlled parking can reduce a development's attractiveness to tenants and customers. While a lack of on-site parking is a real disadvantage, developers who are concerned about this problem can always provide the parking rather than pay the fee.
2. *High fees*. Cities may not construct and operate parking facilities as efficiently as the private sector. For example, cities may pay extra to improve the architectural design of parking lots and structures. The resulting in-lieu fees may be high. Although some cities charge high in-lieu fees, most set their in-lieu fees lower than the cost of providing a public parking space. Because the fixed cost for ramps, elevators, stairwells, and curb cuts can be spread among more spaces in large public parking structures, economies of scale in building these structures can further reduce the in-lieu fees.
3. *No guarantees.* Cities may intend to use the in-lieu fee revenue to finance public parking, but they do not guarantee when or where the parking spaces will be provided. To address this concern, some cities build public parking structures before receiving the in-lieu fees. The in-lieu fees are then used to retire the debt incurred to finance the structures. Other cities return the in-lieu fees if they do not provide the parking within a certain time. A city can also

United States		United Kingdom
Berkeley, Calif.	Palo Alto, Calif.	Brent
Beverly Hills, Calif.	Pasadena, Calif.	Harrow
Carmel,Calif.	San Francisco, Calif.	Kingston upon Thames
Chapel Hill, N.C.	San Rafael, Calif.	Redbridge
Claremont, Calif.	State College, Penn.	Sutton
Concord,Calif.	Walnut Creek, Calif.	Waltham Forest
CulverCity, Calif.		
Davis, Calif.	**Canada**	**Germany**
Hermosa Beach, Calif.	Burnaby, B.C.	Dresden
Kirkland,Wash.	Calgary,Alberta	Frankfurt
Lafayette, Calif.	Hamilton, Ontario	Hamburg
Lake Forest, III.	Kitchener, Ontario	Munich
Manhattan Beach, Calif.	Ottawa, Ontario	Nuremberg
Montgomery County, Md.	Toronto, Ontario	Würzburg
Mountain View, Calif.	Vancouver, B.C.	
Mill Valley, Calif.		**South Africa**
Orlando, Fla.	**Iceland**	Johannesburg
Palm Springs, Calif.	Reykjavik	Port Elizabeth

Table I *Surveyed cities with in-lieu parking fees.*

delay collecting the in-lieu fees until the revenue is needed to construct the public parking.

4. *Fewer parking spaces*. In-lieu fees will reduce the parking supply if cities provide fewer than one public parking space for each in-lieu fee paid. A smaller parking supply can put an area at a competitive disadvantage. Cities may not provide one public parking space for each in-lieu fee paid, but if a city uses in-lieu fees to build public parking spaces rather than grant variances to reduce parking requirements, the in-lieu policy will increase rather than decrease the parking supply. Even if an in-lieu policy does reduce the parking supply, shared public parking reduces the parking supply needed to meet the sum of all individual peak parking demands.

While the developers' concerns cannot be ignored, officials in most of the surveyed cities said that the fees had become a form of administrative relief for developers who do not want to provide the required parking spaces. In practice, the in-lieu fees have benefitted developers by offering them an alternative to building expensive parking spaces.

How Cities Set the Fees

Cities use two basic approaches to set their in-lieu fees. The first is to calculate the appropriate fee per space on a case-by-case basis for each project. The second is to have a uniform fee per space for all projects.

One city has employed both methods. Until 1994, Beverly Hills used the first approach – a specific fee for each project. The in-lieu fee for a project was the estimated land-and-construction cost per space to build a nearby public parking structure. Between 1978 and 1992, developers paid in-lieu fees for 52 parking spaces. The per-space fee set for each project was the sum of (1) the value of 60 square feet of land within a 300-foot radius of the site, and (2) the average construction cost per space in municipal parking structures. The average fee was $37,000 per space, and the highest was $53,000 per space. Therefore, in the extreme case, a developer was willing to pay the city $53,000 for the right not to provide a parking space (Beverly Hills 1992).

This case-by-case procedure required a land-value appraisal to estimate the cost of public parking near each project that applied to pay the fee. After waiting four to six months to be notified of the fee, applicants usually appealed to the City Council to reduce it. Developers complained that not knowing the fee until after the appraisal created uncertainty in project planning. The case-by-case approach was complicated, time-consuming, and expensive.

To address these problems, Beverly Hills adopted the second approach in 1994 – it set uniform fees for all projects. These new fees are easier for the city to administer and for developers to use. Developers can easily incorporate the fee in a financial analysis and decide whether to provide the required parking or pay the fee. Thirty-seven of the 46 surveyed cities set uniform fees, probably because of their certainty, simplicity, and equity.[4]

Most cities' in-lieu fees do not cover the full cost of providing a public parking space.[5] Cities aim to set their fees high enough to pay for public parking, yet low enough to attract development. Most cities have no explicit policy regarding how often to revise their fees, and some cities' fees have not changed for many years. A few cities automatically link their fees to an index of construction costs. For example, Beverly Hills and Palo Alto adjust their fees annually by the ENR Construction Cost Index, a measure of cost inflation in the construction industry.

Kirkland has two unusual in-lieu options. Developers can pay $6,000 per parking space not provided, and the subsequent owners must purchase one parking permit in a public lot for every three spaces not provided (because the city estimates that employees use one-third of the required parking spaces). Alternatively, developers pay no initial in-lieu fee but subsequent owners must purchase a parking permit in a public lot for each space not provided. This annual option reduces the capital cost of development and encourages the use of public parking. A property owner may cancel the annual agreement at any time by providing the required on-site parking.

German cities often have a graduated schedule of in-lieu fees *(Ablösebeträge)*. The fees are highest in the city center and decline with distance from the center. For example, Hamburg's fee is $20,705 per parking space in the city center, and $11,300 in the area surrounding the center.

Vancouver has the most sophisticated method for calculating its in-lieu fee ($9,708 per space). This fee is the parking subsidy implicit in constructing a new public parking space, as measured by: (1) the land-and-construction cost per space in a public parking structure, minus (2) the present discounted value of the net operating income per space during the expected 30-year life of the structure, minus (3) the present discounted value of the residual property value of the structure, per space, after 30 years. The in-lieu fee is thus the expected net present cost per space – all parking costs minus all parking revenues – over the structure's life. Developers who pay the fees do not subsidize the city, and the city does not subsidize developers. Instead, developers subsidize parking.

To summarize, some cities set the fees on a case-by-case basis, but most set uniform fees for all development. Cities use a wide variety of methods to set their in-lieu fees, which range from $2,000 to $27,520 per parking space not provided.

Who Decides Whether to Provide Parking or Pay Fee?

Most cities allow developers to choose whether to pay the fee or provide the parking, but a few cities *require* developers to pay the fee rather than provide the parking. Officials in these latter cities cited several reasons for requiring developers to pay the fees: to centralize parking facilities, put more of the parking supply under public management, encourage shared parking, discourage the proliferation of surface parking lots, emphasize continuous shopfronts, improve pedestrian

circulation, reduce traffic congestion, and improve urban design.[6]

Some cities allow property owners to remove existing required spaces by paying in-lieu fees. This option consolidates scattered parking spaces, facilitates reinvestment in older buildings, and encourages more efficient use of scarce land previously committed to surface parking.

Most American cities reduce their parking requirements in the central business district (CBD). In contrast, German cities often have uniform parking requirements throughout the city, but allow developers in the CBD to provide only part of the required parking, and require them to pay fees for the rest. For example, developers may provide at most 25 percent of the parking required for land uses in the center of Hamburg, and must pay fees in lieu of providing the rest of the parking.

In-lieu fees in the United States are legally justified by the nexus between the fees and the cost of providing public parking spaces. American cities therefore offer the in-lieu option only where they are prepared to spend the fee revenue to provide new public parking facilities. The nexus argument does not necessarily imply that the in-lieu revenue must be used to provide public parking, however, because a variety of transportation improvements can substitute for more parking. For example, British and German cities often use the in-lieu revenue to improve public transportation.

■ The Impact Fees Implicit in Minimum Parking Requirements

Parking requirements resemble impact fees. Many cities require developers to pay impact fees to finance public infrastructure – such as roads and schools – that development makes necessary. In *Regulation for Revenue,* Alan Altshuler and José Gómez-Ibáñez (1993) define these impact fees as "mandated expenditures by private land developers, required as a price for their obtaining regulatory permits, in support of infrastructure and other public services" (vii).

Parking requirements resemble impact fees because developers provide the required infrastructure – parking spaces – to obtain building permits. In-lieu parking fees also resemble impact fees because developers pay the fees to obtain building permits, and cities then use the revenue to pay for public infrastructure – parking spaces– that the development makes necessary. When cities require developers to pay the fees rather than provide the parking, the in-lieu fees *are* impact fees.

We can use the in-lieu fees to estimate the impact fees implicit in parking requirements. Impact fees are usually levied per square foot of building area, while in-lieu fees are levied per required parking space not provided. To compare in-lieu fees with impact fees, we must first convert the in-lieu fees into a cost per square foot of building area. We can do this because cities usually require parking spaces in proportion to building area (on the assumption that building area determines parking demand). The in-lieu parking fees per square foot of building area reveal the impact fees implicit in the parking requirements themselves.

Impact Fees for Office Buildings

The parking impact fee for a land use depends on (1) the parking requirement and (2) the in-lieu fee. Table 2 presents the in-lieu fees and parking requirements for one land use – office buildings in the CBD – for 29 cities in the United States, Canada, the United Kingdom, Germany, South Africa, and Iceland.[7] The last column shows the parking impact fees implicit in the parking requirements for office buildings in these cities.[8]

The first row shows that Palo Alto's in-lieu fee is $17,848 per required parking space not provided. Palo Alto requires four parking spaces per 1,000 square feet of gross floor area for office buildings, so the in-lieu fee is equivalent to an impact fee of $71 per square foot of office space (4x $17,848 ÷1,000). A developer who does not provide any parking must pay the city a parking impact fee of $71 per square foot of office space.

The parking impact fees range from $71 per square foot in Palo Alto to $2 per square foot in Waltham Forest. The median parking impact fee is $25 per square foot of office space in the U.S. cities and $10 per square foot in the Canadian cities. U.S. cities have higher parking impact fees because they require more parking, not because they have higher in-lieu fees. The median parking requirement is 2.9 spaces per 1,000 square feet in the U.S. cities but only one space per 1,000 square feet in the Canadian cities. The median in-lieu fee is $9,125 per space in the U.S. cities and $9,781 per space in the Canadian cities.

The parking impact fees outside North America range widely. Three British cities have high impact fees ($33 to $48 per square foot) because their in-lieu fees are high. Another British city has the lowest impact fee in the table ($2 per square foot) because both its in-lieu fee and its parking requirement are low.[9] The impact fees in Germany ($32 per square foot) and Iceland ($28 per square foot) are high because their in-lieu fees are high. The parking impact fee in South Africa ($4 per square foot) is low because its in-lieu fee is low.

Do planners consider the cost of a parking space when they decide how many spaces to require? If they do, cities with higher in-lieu fees should require fewer parking spaces. But the coefficient of correlation between in-lieu fees and parking requirements in Table 2 is only 0.06, which suggests a random relationship between the cost of a parking space and the number of spaces required. Cost is no concern, it seems, when planners set parking requirements.

The average parking impact fee for the U.S. cities in Table 2 is $31 per square foot, which dwarfs the impact fees levied for all other public purposes. A 1991 survey of 100 U.S. cities found that the impact fees for all purposes (roads, schools, parks, water, sewers, flood control, and the like) averaged $6.97 per square foot of office buildings (see Altshuler and José Gómez-Ibáñez 1993, 40).[10] The average

CITY	IN-LIEU PARKING FEE ($/space)	LAND USE	PARKING REQUIREMENT (spaces per 1,000 square feet)	PARKING IMPACT FEE ($/square foot)
(1)	(2)	(3)	(4)	(5)=(2)X(4)/1,000
Palo Alto, Calif.	$17,848	Offices	4.0	$71
Beverly Hills, Calif.	$20,180	Offices	2.9	$59
Walnut Creek, Calif.	$16,373	Offices	3.3	$55
Kingston upon Thames, U.K.	$20,800	Offices	2.3	$48
Carmel, Calif.	$27,520	Offices	1.7	$46
Mountain View, Calif.	$13,000	Offices	3.0	$39
Sutton, UK	$13,360	Offices	2.7	$36
Harrow, UK	$14,352	Offices	2.3	$33
Hamburg, Germany	$20,705	Offices	1.5	$32
Lake Forest, Ill.	$ 9,000	Offices	3.5	$32
Mill Valley, Calif.	$ 6,751	Offices	4.4	$30
Palm Springs, Calif.	$ 9,250	Offices	3.1	$28
Reykjavik, Iceland	$13,000	Offices	2.2	$28
Claremont,Calif.	$ 9,000	Offices	2.9	$26
Concord, Calif.	$ 8,500	Offices	2.9	$24
Davis, Calif.	$ 8,000	Offices	2.5	$20
Orlando, Fla.	$ 9,883	Offices	2.0	$20
Kitchener, Ontario	$14,599	Offices	1.3	$19
Chapel Hill, N.C.	$ 7,200	Offices	2.5	$18
Kirkland, Wash.	$ 6,000	Offices	2.9	$17
Hermosa Beach, Calif.	$ 6,000	Offices	2.6	$16
Berkeley, Calif.	$10,000	Offices	1.5	$15
Burnaby, British Columbia	$ 7,299	Offices	2.0	$15
Vancouver, British Columbia	$ 9,708	Offices	1.0	$10
State College, Penn.	$ 5,850	Offices	1.3	$ 8
Ottawa, Ontario	$10,043	Offices	0.7	$ 7
Calgary, Alberta	$ 9,781	Offices	0.7	$ 7
Port Elizabeth, South Africa	$ 1,846	Offices	2.3	$ 4
Waltham Forest, U.K.	$ 2,000	Offices	0.9	$ 2
MEAN	$11,305		2.3	$26
MEDIAN	$ 9,781		2.3	$24

In-lieu fees and parking requirements are for the city center in 1996. In-lieu fees and impact fees are expressed in US$.
To obtain the parking requirement in spaces per 100 square meters, multiply the required spaces in Column 4 by 1.076.
To obtain the parking impact fee in dollars per square meter, multiply the impact fee in Column 5 by 10.76.

***Table 2**. Minimum parking requirements considered as impact fees (for office buildings).*

CITY	IN-LIEU PARKING FEE	LAND USE	PARKING REQUIREMENT	PARKING IMPACT FEE
	($/space)		(spaces per 1,000 square feet)	($/square foot)
(1)	(2)	(3)	(4)	(5)=(2)x(4)/1,000
Beverly Hills, Calif.	$20,180	Restaurant	22.2	$448
Palm Springs, Calif.	$ 9,250	Cabaret	28.6	$264
Mountain View, Calif.	$13,000	Assembly Hall	18.0	$234
Kingston upon Thames, U.K.	$20,800	Food Superstore	7.7	$160
Davis, Calif.	$ 8,000	Funeral Home	20.0	$160
Sutton, U.K.	$13,360	Food Superstore	8.5	$114
Kitchener, Ontario	$14,599	Manufacturing	7.7	$112
Calgary, Alberta	$ 9,781	Billiard Parlor	10.3	$101
Ottawa, Ontario	$10,043	Church	9.8	$ 98
Claremont, Calif.	$ 9,000	Theater	10.0	$ 90
Hermosa Beach, Calif.	$ 6,000	Theater	13.0	$ 78
Burnaby, British Columbia	$ 7,299	ArtGallery	10.3	$ 75
Palo Alto, Calif.	$17,848	All Uses	4.0	$ 71
Mill Valley, Calif.	$ 6,751	Assembly Hall	10.0	$ 68
Harrow, U.K.	$14,352	Garden Center	4.6	$ 67
Hamburg, Germany	$20,705	Garden Center	3.1	$ 64
Walnut Creek, Calif.	$16,373	Nonresidential	3.3	$ 55
Kirkland, Wash.	$ 6,000	Restaurant	8.0	$ 48
Carmel, Calif.	$27,520	Commercial	1.7	$ 47
Concord, Calif.	$ 8,500	Restaurant	4.0	$ 34
Port Elizabeth, South Africa	$ 1,846	Recreation Hall	18.6	$ 34
Reykjavik, Iceland	$13,000	Nonresidential	2.2	$ 28
Lake Forest, Ill.	$ 9,000	Restaurant	2.5	$ 23
Orlando, Fla.	$ 9,883	Nonresidential	2.0	$ 20
Chapel Hill, N.C.	$ 7,200	Offices	2.5	$ 18
Berkeley, Calif.	$10,000	Nonresidential	1.5	$ 15
Vancouver, British Columbia	$ 9,708	Nonresidential	1.0	$ 10
Waltham Forest, U.K.	$ 2,000	Shops	4.5	$9
State College, Penn.	$ 5,850	All Uses	1.3	$8
MEAN	$11,305		8.3	$ 88
MEDIAN	$ 9,781		7.7	$ 67

In-lieu fees and parking requirements are forthe city center in 1996. In-lieu fees and impact fees are expressed in US$.
To obtain the parking requirement in spaces per 100 square meters, multiplythe required spaces in Column 4 by 1.076.
To obtain the parking impact fee in dollars per square meter, multiply the numbers in Column 5 by 10.76.
The land uses are those with the highest minimum parking requirements in each city.

Table 3 *Minimum parking requirements considered as impact fees (for land uses with the highest parking requirements).*

parking impact fee for office buildings is thus 4.4 times the average impact fee for all other public purposes combined. If impact fees reveal a city's priorities for public services, many cities' highest priority is free parking. [11]

The 1995 Nationwide Personal Transportation Survey found that the average round-trip distance traveled to work in the United States was 23.2 miles.[12] Because new cars averaged 28.6 miles per gallon of gasoline in 1995, the average commute in the average new car consumed 0.81 gallons of gasoline a day, or 17.8 gallons a month for commuting 22 days a month. The average price of gasoline in the United States was $1.21 a gallon in 1995.[13] At this combination of commute distance, fuel efficiency, and fuel price, the fuel cost of commuting by car is $22 a month. In this case, a parking subsidy of more than $22 a month is worth more than free gasoline for commuting.

The average in-lieu parking fee in the United States in Table 2 is $11,305 per space. At an interest rate of 4 percent

amortized over 30 years, this in-lieu fee is equivalent to a capital cost of $54 per parking space per month. This cost estimate is conservative because the interest rate is low and operating expenses are ignored. Nevertheless, it shows that parking requirements based on the demand for free parking double the cost of the gasoline used for driving to and from the required parking.

Impact Fees for Land Uses with the Highest Minimum Parking Requirements

Table 3 shows each city's parking impact fee for the land use with the highest parking requirement. The in-lieu fees in Table 3 are the same as those in Table 2 for office buildings because each city uses the same in-lieu fee for all land uses. The first row shows that Beverly Hills' in-lieu fee is $20,180 per required parking space not provided, and that Beverly Hills requires 22.2 parking spaces per 1,000 square feet of restaurant space (one space per 45 square feet). Therefore, the parking requirement and the in-lieu fee together impose a parking impact fee of $448 per square foot of restaurant space (22.2 x $20,180÷1,000). A developer who does not provide any parking must pay the city an impact fee of $448 per square foot of restaurant space.

The impact fees in Table 3 are higher than in Table 2 because the parking requirements for the land uses in Table 3 are higher. For example, Mountain View's highest parking requirement (for assembly halls) is six times its parking requirement for office buildings, so its parking impact fee increases from $39 per square foot in Table 2 to $234 per square foot in Table 3.

The parking impact fees range from $448 per square foot of restaurant space in Beverly Hills to $8 per square foot for any land use in State College, Pennsylvania. The great variation in the cities' minimum parking requirements explains most of this variation in the parking impact fees.[14] For example, Palm Springs and Vancouver have similar in-lieu fees, but Palm Springs' parking impact fee is 27.1 times Vancouver's because Palm Springs' highest parking requirement is 28.6 times Vancouver's highest parking requirement.

If a parking requirement is high, reducing the in-lieu fee does not make the parking impact fee low. For example, to encourage the expansion of restaurants that have been in business for at least two years, Beverly Hills offers a reduced in-lieu fee of $6,265 per space, which is 35 percent of the construction cost per space for municipal parking structures, excluding land cost. Beverly Hills requires one parking space per 45 square feet of restaurant area, so this reduced in-lieu fee is equivalent to an impact fee of $139 per square foot of restaurant area ($6,265÷45). The in-lieu fee is far below the cost of providing a public parking space; but the parking impact fee is still high.[15]

Do In-Lieu Fees Impose a Cost on Developers?

In-lieu fees do not impose a cost on developers. Minimum parking requirements impose the cost, and in-lieu fees merely give developers an alternative to providing the required parking. If the in-lieu fee equals the cost of providing a parking space, the parking impact fee shows the cost of complying with the parking requirement.

Parking requirements would not impose a cost if developers voluntarily provided all the parking that zoning requires. But if developers voluntarily provided all the parking that zoning requires, parking requirements would be pointless. Some developers may provide more parking than required, but studies in the Los Angeles and Chicago regions have found that developers generally provide only enough parking to satisfy the zoning requirements. City officials, developers, lenders, leasing agents, and tenants all assume that planners know how much parking each land use needs (see Willson 1995; Chicago Regional Transportation Authority 1998).

In my own experience as a member of a Design Review Board in Los Angeles, I have reviewed the plans for all development projects in one part of the city, Westwood, for the past six years. I have seen many cases where the required parking limited a project's density or disfigured its design, but I have never seen a project that provided more parking than required.[16]

The impact fees in Tables 2 and 3 underestimate the cost of complying with parking requirements because developers who provide the required parking must also pay property taxes and operating costs for the privately owned spaces. The impact fees also understate the cost of complying with parking requirements if cities set their in-lieu fees below the cost of providing a parking space. Hamilton, Lake Forest, and Toronto set their fees at half the estimated land-and-construction cost of providing parking spaces.[17] Mountain View, Orlando, and Walnut Creek set their fees at the construction cost per space in parking structures, excluding land cost.[18]

When asked why they set the in-lieu fee below the cost of providing a parking space, city officials typically answered that the fee would be "too high" if the city charged the full cost. When the cost of required parking is hidden in the cost of development, cost does not seem to matter, But when the cost of required parking is made explicit in cash, everyone can see that it is "too high."

Parking Requirements, In-Lieu Fees, and Impact Fees

We can use the data in Tables 2 and 3 to show the relationships among parking requirements, the cost of parking spaces, and impact fees, as seen in Figure 1, which uses the data for office buildings. The horizontal axis shows the parking requirement in spaces per 1,000 square feet of gross floor area, and the vertical axis shows the fee per parking space not provided. Each equal-impact-fee (isocost) curve

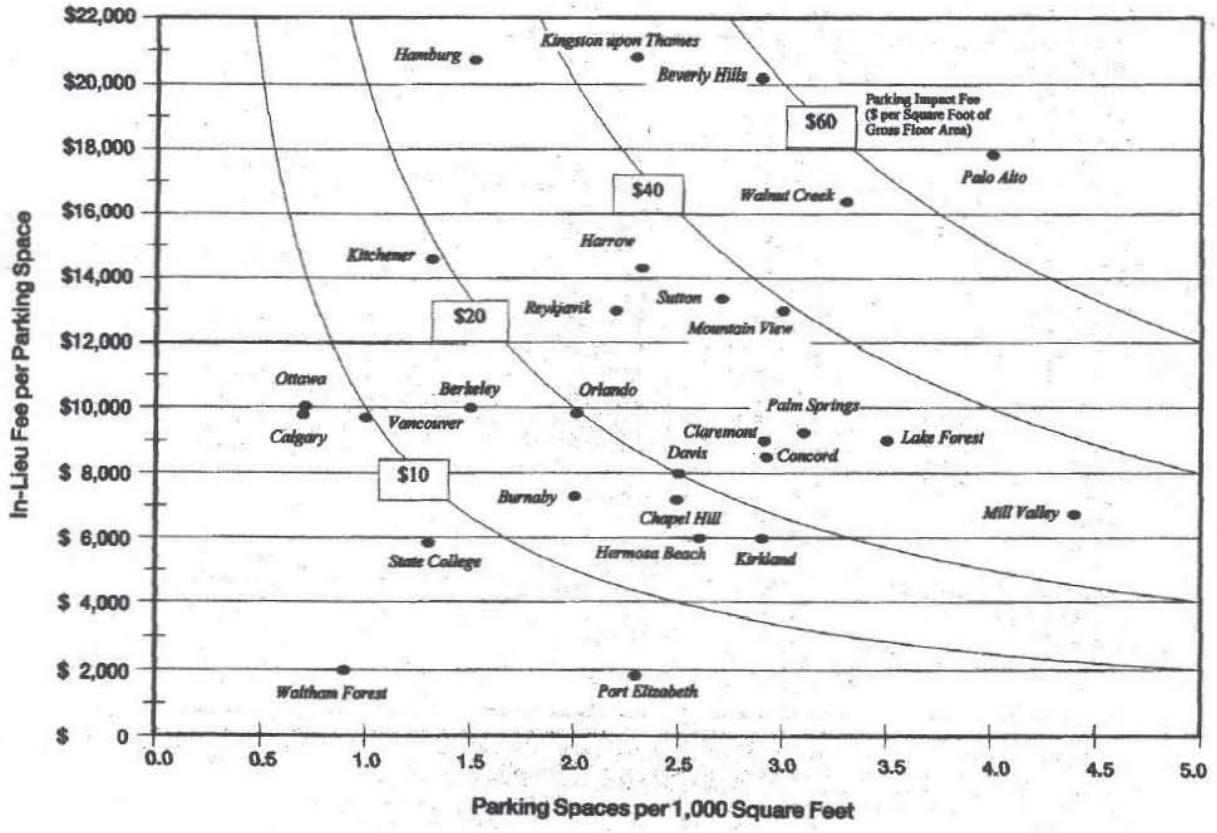

Figure 1. *Parking impact fees as a function of parking requirements and in-lieu fees (for office buildings).*

shows combinations of parking requirements and in-lieu fees that produce the same impact fee. For example, the lowest curve shows that a requirement of one space per 1,000 square feet and an in-lieu fee of $10,000 per space together create an impact fee of $10 per square foot of floor area, as do all other combinations of parking requirements and in-lieu fees along the same curve.[19]

A horizontal band of cities have similar in-lieu fees ranging from $6,000 to $10,000 per parking space, but their parking impact fees differ greatly because their parking requirements differ greatly. For example, Lake Forest and Calgary have similar in-lieu fees, but Lake Forest's parking impact fee is more than four times Calgary's because Lake Forest requires 3.5 spaces per 1,000 square feet while Calgary requires only 0.7 spaces per 1,000 square feet.

Cities with dissimilar in-lieu fees can have similar parking impact fees. For example, Mill Valley's in-lieu fee is less than a third of Hamburg's; but its parking impact fee is similar to Hamburg's because Mill Valley requires 4.4 spaces per 1,000 square feet while Hamburg requires only 1.5 spaces per 1,000 square feet.

Figure 2 arrays cities according to their in-lieu fees and parking requirements in Table 3 (i.e., for land uses with the highest parking requirements). Because the coefficient of correlation between the cities' impact fees in Tables 2 and 3 is only 0.43, the cities' relative positions shift substantially from Figure 1 to Figure 2. In more ways than one, parking impact fees are all over the map.

This all-over-the-map aspect of parking impact fees should not surprise us, given the haphazard nature of parking require-ments. Explaining how planners set parking requirements, Robert Weant and Herbert Levinson (1990) say:

> Most local governments, through their zoning ordinances, have a parking supply policy that requires land uses to provide sufficient off-street parking space to allow easy, convenient access to activities while maintaining free traffic flow. The objective is to provide enough parking space to accommodate recurrent peak-parking demands .... For the purpose of zoning ordinance applications, parking demand is defined as the accumulation of vehicles parked at a given time as the result of activity at a given site (35-37).

That is, planners count the cars parked at existing land uses, define the maximum number of parked cars as parking

demand, and then require new land uses to supply at least enough parking spaces to satisfy this demand. Without considering either the cost or the price of parking, urban planners set minimum parking requirements to satisfy the peak parking demand.

Because high parking requirements increase development costs, they might be interpreted as a tacit way for cities to control growth. But if the goal is growth control, high parking requirements have a serious unintended consequence. All new development will have plenty of free parking, which will increase trip generation and the associated traffic. If growth control is intended to limit traffic, high parking requirements are a perverse way to control growth.

High parking requirements might also be explained as a response to high parking demand. But demand depends on price, and the high cost of providing parking should cause planners to ask, "At what price is demand being estimated"' Parking requirements based on the observed demand for parking typically require enough parking spaces to satisfy the demand for *free* parking.

■ AN ANALOGY: PTOLEMAIC ASTRONOMY

As experience has accumulated, planners have made progress in predicting the peak demand for parking at different land uses. This progress in planning resembles the progress made in astronomy from the time of Ptolemy through the medieval period. Astronomers gradually became more accurate in predicting the motion of stars and planets, but they fundamentally misunderstood what they were trying to explain. Thomas Kuhn (1957) says:

> accuracy was invariably achieved at the price of complexity ... and the increased complexity gave only a better approximation to planetary motion, not finality. No version of the system ever quite with-stood the test of additional refined observations (74).

Ptolemaic astronomers believed that the earth was at the center of the universe, and that everything else rotated about the earth. This theory explained the motion of stars, but the motion of planets was a puzzle. The word *planet* stems

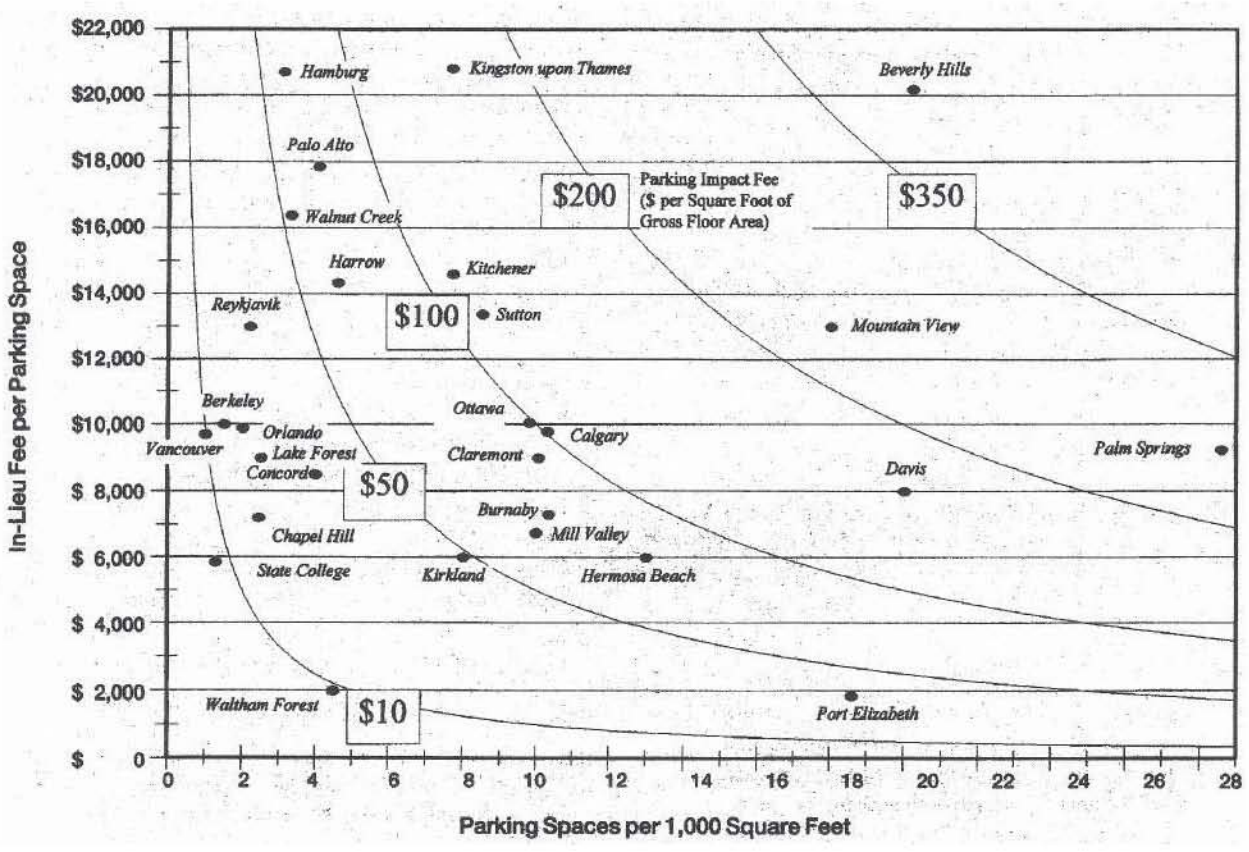

Figure 2 *Parking impact fees as a function of parking requirements and in-lieu fees (for land uses with the highest parking requirements).*

from the Greek word meaning *wanderer,* and astronomers developed complex mathematical devices-such as epicycles-to explain the planets' wandering behavior. But the fundamental theory was faulty, and more accurate observations of planetary motion always showed that the theory's predictions were wrong.

Similarly, many planners seem to believe that parking is at the center of urban development. Planners have gradually become more accurate in predicting parking demand as a function of land use, but this greater accuracy has invariably been achieved at the price of complexity. For example, the Planning Advisory Service of the American Planning Association has published three surveys of parking requirements in American cities. The 1964 survey reported 368 different requirements for 30 different land uses. The 1971 survey reported 609 different requirements for 83 different land uses. The 1991 survey reported 648 different requirements for 179 different land uses.[20] Despite this growing complexity, no one can accurately predict how many parking spaces any land use needs without considering the price of parking. For the same land use, the parking requirements in Table 3 vary between one and 28.6 parking spaces per 1,000 square feet.[21]

The growing complexity extends well beyond more requirements for more land uses. Some cities allow shared parking for a combination of land uses when the peak parking demands occur at different times. Some cities allow valet and tandem parking to increase parking capacity. All cities grant variances from parking requirements to accommodate special circumstances. Adding to the complexity, urban planners have invented many pseudo-scientific terms to describe observed but poorly understood phenomena: parking deficit, parking generation, parking need, parking overflow, parking ratio, parking spillover, parking turnover, peak parking factor, shared parking, and underparked.

Confusion reigns, and planners cannot even agree on whether to require or restrict parking. Consider the diametrically opposed approaches in Los Angeles and San Francisco. Los Angeles requires a minimum number of spaces, while San Francisco restricts the maximum number of spaces. For an auditorium in the CBD, Los Angeles requires as a minimum 50 times more parking spaces than Sara Francisco allows as the rnaximum.[22] These minimums and maximums exemplify the Soviet planning slogan, "What is not made compulsory must be prohibited."

Planners usually require a minimum number of parking spaces, and they sometimes restrict the maximum number of parking spaces, but they almost never take a hands-off approach to the number of parking spaces. Perhaps some planners unconsciously fear that critics may ask, "If planners don't even know how many parking spaces to require, what *do* they know?" Or perhaps parking requirements are simply a professional confidence trick that planners have played not only on others but also on themselves,

Parking requirements stem from a belief that urban planners know how many parking spaces every land use needs, Planners *can* rationally regulate many dimensions of parking that affect the public, such as curb cuts, guidance, handicapped access, landscaping, layout, location, pedestrian amenity, setback, signage, stormwater runoff, and urban design. Planners can and should regulate the *quality* of parking. But planners *cannot* rationally regulate the *number* of parking spaces without considering the price and cost of parking and the wider consequences for transportation and land use.

By comparing urban planners to Ptolemaic astronomers, 1 am not questioning planners' abilities. Ptolemaic astronomers were diligent scientists, but in considering the earth to be the center of the universe they were making a fundamental mistake. Similarly, in requiring a minimum number of off-street parking spaces for all land uses, urban planners are making a fundamental mistake. The high impact fees implicit in minimum parking requirements reveal the high cost of this mistake.

■ An Alternative: Reduce Demand Rather Than Increase Supply

Minimum parking requirements lack a theoretical basis, and even their empirical basis is weak, But reform will be difficult because parking requirements are entrenched in planning practice and legislated in zoning ordinances, Nevertheless, the emergence of in-lieu fees suggests that change is possible. In-lieu fees also suggest another promising option: *allow developers to reduce parking demand rather than increase the parking supply.*

An Example: Transit Passes in Lieu of Parking Spaces

Offering free transit passes to commuters will reduce the demand for parking at work. Therefore, a city could reduce the parking requirements for developments where the developer commits to provide transit passes far commuters who do not drive to work.

Suppose that providing free transit passes to the employees at a site would reduce parking demand at the site by one parking space per 1,000 square feet, In this case, a covenant to provide free transit passes to employees at the site is an appropriate alternative to providing one required parking space per 1,000 square feet.[23]

The in-lieu transit option would be simplest where firms can buy a blanket transit pass for all employees, For example, some transit agencies offer employers the option to buy "Eco Passes" that allow all their employees to ride free on all local transit lines, A city could therefore reduce the parking requirements for a building where all employees are offered Eco

	ANNUAL PRICE PER EMPLOYEE		
LOCATION	1-99 Employees	100-4,999 Employees	5,000+ Employees
Downtown San Jose	$80	$60	$40
Areas with bus & light rail	$60	$40	$20
Areas with bus only	$40	$20	$10

Table 4. *Eco Pass price schedule, Santa Clara Valley Transportation Authority.*

Passes. The Eco Pass is a tax-deductible expense for employers and a tax-free benefit for employees.

Transit agencies price Eco Passes according to probability of use. The price per employee is low because many employees do not ride transit even when it is free. Employers can therefore buy transit passes for all employees at a low cost. For example, as shown in Table 4, the Santa Clara Valley Transportation Authority (SCVTA) in California's Silicon Valley charges from $10 to S80 per employee per year for the Eco Passes, depending on an employer's location and number of employees.[24]

An example can explain Eco Pass pricing. Suppose (1) the price of a conventional transit pass is $400 a year, (2) employers offer free passes to commuters who ride transit, and (3) 20 percent of commuters ride transit. Per 100 employees, employers would pay $8,000 a year for 20 conventional transit passes (20 x $400), or $80 per employee per year ($8,000÷ 100). The transit agency can therefore sell Eco Passes for 100 employees at a price of only $80 per employee per year, carry the same number of riders, and receive the same $8,000 a year in total revenue that it would receive from the sale of conventional transit passes at $400 a year for 20 employees.

Because frequent riders often buy transit passes, transit agencies must price these passes on the assumption of frequent use. And because transit agencies price transit passes to cover the cost imposed by frequent riders, infrequent riders will not buy them. In contrast, Eco Passes are priced like employer paid insurance that covers every member of a defined population. Adverse selection does not occur when all employees receive Eco Passes, and the price of an Eco Pass is therefore much lower than the price of a conventional transit pass.[25] For example, the SCVTA's price for its Eco Pass ($10 to $80 per employee per year) is only 2 percent to 19 percent of the price for its conventional transit pass ($420 a year).

Providing Eco Passes for employees – a demand-side subsidy – is different from subsidizing the transit system as a whole – a supply-side subsidy. Providing Eco Passes for all employees at a site increases transit use to that site and reduces parking demand at that specific site. This reduction in parking demand justifies a smaller parking supply at the site that provides the Eco Passes. In contrast, subsidizing the system as a whole would improve transit service but would not significantly reduce parking demand at any specific site, Therefore, subsidizing the system would not justify a smaller parking supply at the site that pays the subsidy.

Providing Eco Passes instead of required parking spaces converts a supply-side subsidy for parking into a demand-side subsidy for transit. The appropriate rate of substitution between Eco Passes and parking spaces depends on how shifting subsidies from parking to transit will reduce parking demand. Cities can offer a greater reduction in parking requirements in the CBD) and other transit-oriented districts because Eco Passes will reduce parking demand more at sites that have better transit service. Providing Eco Passes instead of parking spaces will benefit these transit-oriented districts by allowing higher density without more vehicle traffic.

The Cost of Reducing Parking Demand

Reducing parking demand can cost much less than increasing the parking supply. Employers in Silicon Valley pay $10 to $80 per employee per year for Eco Passes. If there are four employees per 1,000 square feet of office space, Eco Passes would cost from 4 cents to 32 cents per square foot of office space per year.[26] How does this cost of offering Eco Passes to all employees compare with the resulting reduction in the capital cost of providing the required parking spaces?

A survey of commuters whose employers offer Eco Passes found that the solo-driver share fell from 76 percent before the passes were offered to 60 percent afterward (Santa Clara Valley Transportation Authority 1997). The transit mode share for commuting increased from 11 percent to 27 percent. These mode shifts reduced commuter parking demand by approximately 19 percent.

The SCVTA serves two of the surveyed cities that have in-lieu parking fees (Mountain View and Palo Alto). As Table 2 shows, the parking impact fee for office buildings is $39 per square foot of office space in Mountain View and $71 per square foot of office space in Palo Alto. If the Eco Passes reduce parking demand by 19 percent, they will reduce the capital cost of providing the required parking spaces by $7.41 per square foot of office space in Mountain View and by $13.49 per square foot of office space in Palo Alto.[27]

If spending between 4 cents and 32 cents a year to provide Eco Passes will reduce the capital cost of required parking by between $7.41 and $13.49, the annual cost of the Eco Passes ranges from 0.3 percent to 4.3 percent of the reduction in the capital cost of parking. That is, spending $1 every year for transit will save between $23 and $337 for the initial capital cost of parking. Eco Passes will also reduce the operating and maintenance costs for parking because fewer spaces are required. The low cost of reducing parking demand compared with the high cost of increasing the parking supply shows that Eco Passes are a cost-effective fringe benefit. Eco Passes can greatly reduce the high cost of offering free parking.

Administering the Eco Pass option should be simpler than administering conventional in-lieu fees because cities would not need to construct, operate, and maintain parking structures. A property's transit-pass obligation could be

enforced by a covenant or conditional use permit for as long as the required parking is not provided. Monitoring compliance should be simple because public transit operators would have a strong financial incentive to ensure that property owners pay for the required transit passes.

The Benefits of Reducing Parking Demand

Providing Eco Passes instead of parking spaces can yield benefits for developers, property owners, employers, commuters, and cities.

Benefits to Developers and Property Owners

Developers who pay conventional in-lieu parking fees receive no individual benefit beyond permission to build without providing the required parking. But developers who provide in-lieu Eco Passes also receive the individual benefit of free public transit for all tenants. If a developer provides fewer than the required number of parking spaces, the compensating amenity of free transit should increase a project's marketability.

Providing Eco Passes in lieu of parking spaces can also reduce the risk and improve the feasibility of project finance. The capital cost of parking is fixed regardless of building occupancy, and it is a heavy burden for a new building that is not fully leased. In contrast, the cost of Eco Passes varies according to the number of employees in the building, and the cost will be low if the building is not fully leased. Providing Eco Passes instead of parking spaces converts an up-front capital cost for parking into an annual cost for transit, and many developers may want to make this trade if offered the option.

Benefits to Employers

Eco Passes will save employers some of the money they now spend to subsidize parking. Suppose that Eco Passes cost $40 per employee per year and that they reduce the demand for commuter parking by 19 percent (as found in the Silicon Valley). The Eco Passes will save more than $40 per employee per year on parking subsidies if the employer had been spending more than $211 per employee per year to subsidize parking, because reducing a parking subsidy of $211 a year by 19 percent saves $40 a year. Many employers spend far more than $211 per year ($17.60 per month) per employee to subsidize parking.[28] These employers can therefore offer free transit passes, continue to offer free parking, *and* save money.

Benefits to Commuters

Eco Passes clearly benefit commuters who ride transit to work, and they can also benefit commuters who usually drive to work. Drivers can consider the Eco Passes a form of insurance for days when their cars are not available. Eco passes offer commuters day-to-day flexibility in commuting and the choice between riding transit or driving to work is not a long-term either-or commitment.

Employees can also use their Eco Passes for non-work trips. In the Silicon Valley survey, 60 percent of employees reported using their Eco Passes for trips other than commuting, with an average of four non-work trips a month.

Benefits to Transit Operators

Using unbuilt parking spaces to finance Eco Passes would increase transit ridership and transit revenue. Although Eco Pass programs are new, in 1997 employers purchased Eco Passes for 38,000 employees in Denver and 40,000 employees in Silicon Valley. If developers could provide Eco Passes instead of parking spaces, Eco Pass sales would undoubtedly increase. Permanent demand-side subsidies for transit financed by a reduction in the capital cost of supply-side subsidies for parking would provide a reliable revenue source for transit agencies.

If developers make long-term commitments to purchase Eco Passes, transit planners can improve service to the sites where they know transit demand will be strong. This service improvement will benefit all riders, not just Eco Pass holders, and it can attract additional riders who pay a full fare.

Benefits to Cities

As with conventional in-lieu fees, providing Eco Passes in lieu of parking spaces will improve urban design, reduce the need for variances, and help to preserve historic buildings and rehabilitate historic areas. Beyond these advantages, reducing the demand for parking rather than increasing the supply of parking will reduce traffic congestion, air pollution, and energy consumption – all at no cost if the existing transit has excess capacity.

Other In-Lieu Options to Reduce Parking Demand

Cities could also allow in-lieu options for land uses other than employment sites. For example, some universities contract with their local transit agencies so their student identification cards serve as public transit passes, and these transit pass programs reduce the demand for parking on campus (Brown, Hess, and Shoup 1998). Cities could therefore allow a university to offer a transit pass program instead of required parking spaces.

A city could allow theaters and stadiums to offer free transit to all ticket holders instead of providing required parking spaces. For example, the University of Washington contracts with Seattle Metro so that ticket holders can show their game tickets to ride on any Metro transit service on the day of a game The share of ticket holders arriving at Husky Stadium by transit increased from 4.2 percent in 1984 (the year before the transit agreement) to 20.6 percent in 1997 (University of Washington Transportation Office 1997).

A city could allow apartment developers to offer free transit passes for residents instead of providing some required parking spaces. In State College, Pennsylvania, one of the

cities with in-lieu fees, the Centre Area Transportation Authority contracts with apartment developers and owners to give all residents passes for the transit lines that serve the apartments. The passes are priced at approximately $100 per apartment per year. Participating developers are encouraged to build transit amenities into their site designs (bus shelters and bus pull-off lanes). Apartment owners advertise these transit passes as a benefit they offer to tenants. The apartment transit passes should attract a niche market of those who are less likely to own cars, and should be especially appropriate for transit-oriented districts with good transit service and a reduced parking supply.

A city could allow hotels to offer free transit for guests instead of providing some required parking spaces. Beyond saving money on constructing parking spaces, offering free transit could help a hotel to attract a niche market of guests without cars. If hotels that offer free transit attract guests without cars, this would justify the smaller parking supply. Some hotels already offer free shuttles to popular destinations, or offer guests free tokens on public transit, and cities could reduce parking requirements in exchange for these policies.

Beyond offering transit passes, a city could allow developers and employers to take other measures to reduce parking demand. For example, offering employees the option to cash out employer-paid parking has been found to reduce parking demand by an average of 11 percent, at almost no added cost to employers.[29] Therefore, a city could reduce the parking requirement for sites where developers commit to a parking cash-out program.

Some cities allow property owners to remove existing parking spaces if they pay an in-lieu fee per required space removed. Cities could also allow owners to remove existing parking spaces if they offer transit passes and/or a parking cashout program. This in-lieu option would assist infill development, improve urban design, and increase urban density without increasing traffic.

Finally, a city could require the provision of transit passes and/or parking cash out at a site if the developer wished to provide more than the required number of parking spaces. That is, a developer would have to take steps to reduce parking demand in order to receive permission to increase the parking supply above what the zoning requires.

Allowing developers to reduce parking demand instead of increasing the parking supply is a logical extension of in-lieu fee programs. Nevertheless, none of the surveyed cities allows parking demand management as an alternative to providing parking spaces.

■ Conclusion: The High Cost of Minimum Parking Requirements

In-lieu fees unveil the high cost of parking requirements. The impact fees implicit in parking requirements dwarf the impact fees for all other public purposes combined. These high parking impact fees should make it hard for planners to ignore the cost of parking requirements. Given the high cost of providing the required parking, planners should not uncritically assume that the demand for parking automatically justifies parking requirements. Viewed skeptically, minimum parking requirements subsidize cars and distort urban form.

In-lieu fees mitigate the damage caused by parking requirements. The in-lieu fees assist development on difficult sites, encourage shared parking, reduce the demand for variances, improve urban design, and support historic preservation. Beyond allowing developers to finance public parking spaces in lieu of private parking spaces, cities can allow developers to reduce parking demand rather than increase the parking supply. This further development of in-lieu fees will reduce traffic congestion, air pollution, and energy consumption. The option to reduce parking demand rather than increase the parking supply will benefit developers, property owners, employers, commuters, transit agencies, cities, and the environment.

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■ Notes

1. *Monopoly®* is the trademark of Hasbro, Inc. for its real estate trading game. "Free Parking" is one of 40 spaces on the game board.
2. In 1990, the U.S. Department of Transportation conducted the Nationwide Personal Transportation Survey. For all automobile trips made on the previous day, the survey asked 48,000 respondents, "Did *you pay for parking during any part of this trip?"* Ninety-nine percent of the 56,733 responses to this question were "*no*." The responses outnumbered the respondents because some respondents made more than one automobile trip per day (Shoup 1995, 15).
3. The survey includes every in-lieu parking fee program found after searching the literature on parking requirements, sending e-mail requests to parking listservers, and asking the representatives of each city with in-lieu fees for additional leads (a "snowball" sample). Additional cities in Germany have in-lieu fees *(Ablösebeträge),* but as explained later most of these cities' fees are calculated on a case-by-case basis and therefore could not be used to calculate the parking impact fees shown in Tables 1 and 2. Planners in several of the surveyed cities were unaware that any other cities had in-lieu fees, and only four brief published references to in-lieu fees were found:

Public Technology (1982), Higgins (1985), Weant and Levinson (1990), and Topp (1993).

4. Among the nine cities that set fees on a case-by-case basis, Culver City's fee is the assessed value of 300 square feet of land under the development. Hamilton's and Toronto's fees are halfthe land-and-construction cost of providing a new parking space near the development site. Johannesburg's fee is the land value of a surface parking space at the development site. Frankfurt's fee depends on the land-and-construction cost of a parking space, with a maximum fee of $16,025. San Rafael's fee is the fair market value of the land that would otherwise have been devoted to the required off-street parking, plus the cost of paving and other improvements. Montgomery County allows developers to pay a property tax surcharge instead of providing the required parking.
5. The method of setting the fees varies greatly among cities. Lake Forest's fee ($9,000 per space) is half the city's land-and-construction cost per space in surface lots. The fees in Mountain View ($13,000 per space) and Orlando ($9,883 per space) are the cities' construction cost per space in parking structures, excluding land cost. Palo Alto's fee ($17,848 per space) is the construction cost per space added by a parking structure, after deducting the number of surface spaces lost when the structure is built. Walnut Creek's fee ($16,373 per space) is 75 percent of the construction cost per space in a public parking structure, excluding land cost. The fees in Kingston upon Thames ($20,800) and Sutton ($12,800) are the land and construction cost per space in parking structures on the fringe of the town center. Port Elizabeth's fee ($1,846 per space) is the land and construction cost per space in surface lots.
6. Berkeley requires developers of lots under 30,000 square feet to pay fees instead of providing the parking. Calgary requires developers to provide half the required parking and to pay fees for the other half. Orlando requires developers to pay fees instead of providing the first required parking space per 1,000 square feet, and allows them to choose whether to provide parking or pay fees for the rest. Waltham Forest requires developers to provide the first 0.2 required parking spaces per 1,000 square feet and to pay fees for the rest. Carmel and Lake Forest require developers to pay fees in lieu of all the required parking.
7. Office buildings were chosen for Table 2 because they are the most uniformly defined land use among cities. All of the cities in Tables 2 and 3 require parking spaces in proportion to gross floor area. Gross floor area is the building's total floor area, including cellars, basements, corridors, lobbies, stairways, elevators, and storage. Gross floor area is measured from the building's outside wall faces. Seventeen of the 46 surveyed cities do not appear in Tables 2 and 3 because either their in-lieu fees or their minimum parking requirements are not comparable with the other cities. Brent, Culver City, Dresden Frankfürt, Hamilton, Johannesburg, Nuremberg, San Rafael, and Toronto do not have fixed fees; instead these cities establish the fee for each specific case, usually taking into account the appraised land value at the site. Montgomery County's fee is based on the property tax. Manhattan Beach ($25,169 per space) requires parking only for the building area that exceeds a floor-area ratio of 1:1. Lafayette ($8,500 per space), Munich ($16,025 per space), Redbridge $8,624 per space), and Würzburg ($12,820 per space) require parking on the basis of net rather than gross floor area. San Francisco ($17,135 per space) does not require parking spaces in the CBD. Pasadena allows developers to pay an annual fee ($100 per parking space per year in 1992 and subsequently indexed to the Consumer Price Index) per parking space not provided.
8. The fees and parking requirements for each city are their values in 1996. Unless otherwise noted, the fees and parking requirements apply only in the downtown area of each city. Fees are converted into US$ at 1996 rates of exchange: U.S. $1 = 1.37 Canadian Dollars; 1.56 German Marks; 66.57 Icelandic Kronur; 3.84 South African Rands; and 0.60 British Pounds.
9. The British term for an in-lieu fee is "commuted payment." All the British cities in the survey are boroughs of outer London. The inner London boroughs no longer use commuted payments because then have replaced their minimum parking requirements with restrictions on the maximum number of parking spaces allowed.
10. The average impact fee has been converted to dollars of 1996 purchasing power, the year in which all the in-lieu fees were measured.
11. The impact fees in Table 2 refer to one specific land use (offices). Montgomery County, Maryland, has a unique in-lieu arrangement that is independent of land use. In one community (Bethesda), for example, developers can pay a property tax surcharge of 0.7 percent of a property's assessed value instead of providing the required parking; the revenue is used to construct and maintain public parking facilities. Montgomery County's general property tax rate to fund education, health, libraries, police, social services, and transportation is 2 percent of assessed property value. The special property tax rate for parking is thus more than one third of the general property tax rate for education, health, libraries, police, social services, and transportation.
12. See NPTS Web site at http://www.cta.ornl.gov/npts/1995/Doc/EarlyResults.shtml for the average distance to work in 1995.
13. See American Automobile Manufacturers Association (1998) for the average fuel efficiency and the average price of gasoline in 1995.
14. The r^2 for the correlation between minimum Parking requirements and impact fees is 0.60, and the r^2 for the correlation between in-lieu fees and impact fees is 0.12.
15. New restaurants in Beverly Hills are not eligible for the reduced fee. They must pay the full fee, which ranges from $15,135 to $25,225 per space, depending on the restaurant's location. The Parking requirement of one space per 45 square feet of restaurant area and the in-lieu fees are together equivalent to impact fees ranging from $336 to $561 per square foot of restaurant area.
16. As one example of high parking requirements, the North Westwood Village Specific Plan requires 3.5 parking spaces for each dwelling unit that contains more than four habitable rooms, and even kitchens count as habitable rooms (Los Angeles Ordinance 163,202).
17. "Since the payment of the $9,000 per space 'in lieu of ' fee only allows for a property owner to establish a business, the fee has never been intended to cover the full cost of providing a parking space... Historically, the 'in lieu of' fee has been placed at a level that is roughly equivalent to fifty percent of the cost of providing a parking space" (Memo to Lake Forest Plan Commission, February 1, 1993, page 2).
18. In-lieu fees may underestimate the cost of complying with minimum parking requirements for another reason. Developers who pay fees merely receive permission to develop without providing the required parking. Developers who provide the

required parking not only receive permission to develop, but they also own the resulting parking spaces, a valuable asset. Developers who pay the fees instead of providing the required parking would presumably have to pay even more to provide the required parking itself. Suppose the in-lieu fee is $10,000 per space, and that each on-site parking space adds $5,000 to a development's value. In this case the developer will pay the fee only if on-site parking costs more than $15,000 per space. Therefore, payment of the fee suggests that (1) providing the required parking would cost much more, or (2) a parking space does not add much to the development's value.

19. Minimum parking requirements impose no burden if developers would voluntarily provide the required number of parking spaces. Developers would therefore presumably prefer a low parking requirement with a high in-lieu fee to a high parking requirement with a low in-lieu fee, even if the parking impact fee is the same in both cases.
20. See Planning Advisory Service (1964, 1971, 1991). These data greatly understate the growth in the number of different parking requirements. While the 1964 survey reported every parking requirement found for each of 30 land uses, and the 1971 survey reported every parking requirement found for each of 83 land uses, the 1991 survey reported only a few of the many different parking requirements found for each of 179 land uses.
21. Palm Springs requires 28.6 spaces per 1,000 square feet for a cabaret, while Vancouver requires one space per 1,000 square feet for all nonresidential uses, including cabarets.
22. For auditoriums in the CBD, Los Angeles requires a minimum of ten parking spaces per 1,000 square feet, with no maximum. San Francisco allows parking spaces equal to a maximum of 7 percent of building area (0.2 spaces per 1,000 square feet if a parking space occupies 350 square feet), with no minimum.
23. As an administrative precedent for purchasing transit passes in lieu of providing the required parking, some cities allow property owners to purchase parking permits in public garages in lieu of providing the required on-site parking. For example, Kirkland allows a property owner to pay an annual in-lieu fee of $1,020 per required parking space not provided, and the owner receives a parking pass to a public garage for each fee paid. This obligation runs with the land, and commits future property owners either to pay the annual fee or to provide the required parking.
24. This price includes a Guaranteed Ride Home Program. On any day they ride transit to work, employees are entitled to a free taxi ride home in the event of illness, emergency, or unscheduled overtime. The public transit systems in Boulder and Denver, Colorado, and Salt Lake City, Utah, offer similar Eco Pass programs.
25. There can still be adverse selection among employers. Firms with many employees who ride transit will have an incentive to buy the Eco Passes, and this will tend to increase the transit operators' cost.
26. Suppose the Eco Pass costs $80 per employee per year. If there are four employees per 1,000 square feet of office space, the Eco Passes would cost $320 per year per 1,000 square feet of office space (4 x $80), or 32 cents per year per square foot of office space ($320 ÷ 1,000).
27. If satisfying the parking requirement costs $55 per square foot of office space, and if Eco Passes reduce the parking requirement by 19 percent, the Eco Passes would reduce the capital cost of required parking by $10.45 per square foot of office space ($55 x 0.19).
28. Shoup and Breinholt (1997) found that employers in the United States provide 85 million free parking spaces for commuters.
29. Shoup (1997) presents eight case studies in which cashing out employer paid parking reduced parking demand by 11 percent. Because cashing out reduces parking demand, logically it should also reduce parking requirements. California legislation addresses this issue in the following way: "The city or county in which a commercial development will implement a parking cash-out program ... shall grant to that development an appropriate reduction in the parking requirements otherwise in effect for new commercial development" (California Health and Safety Code Section 65089).

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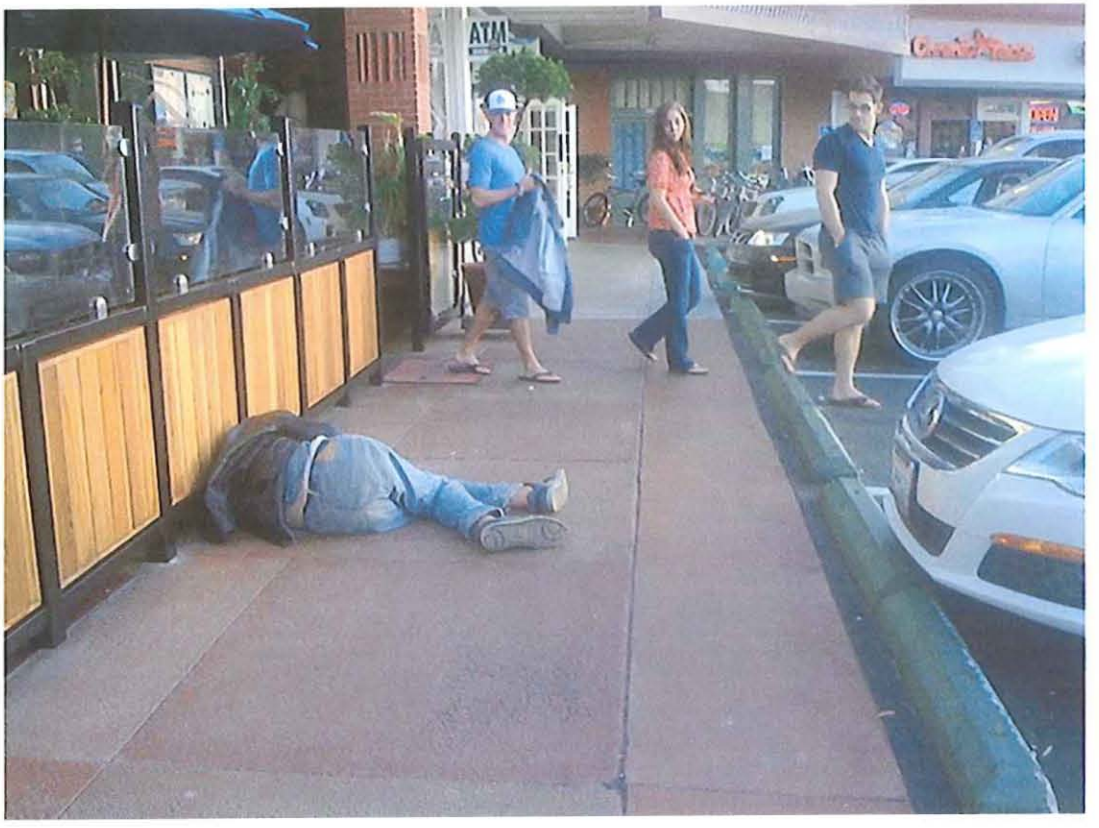
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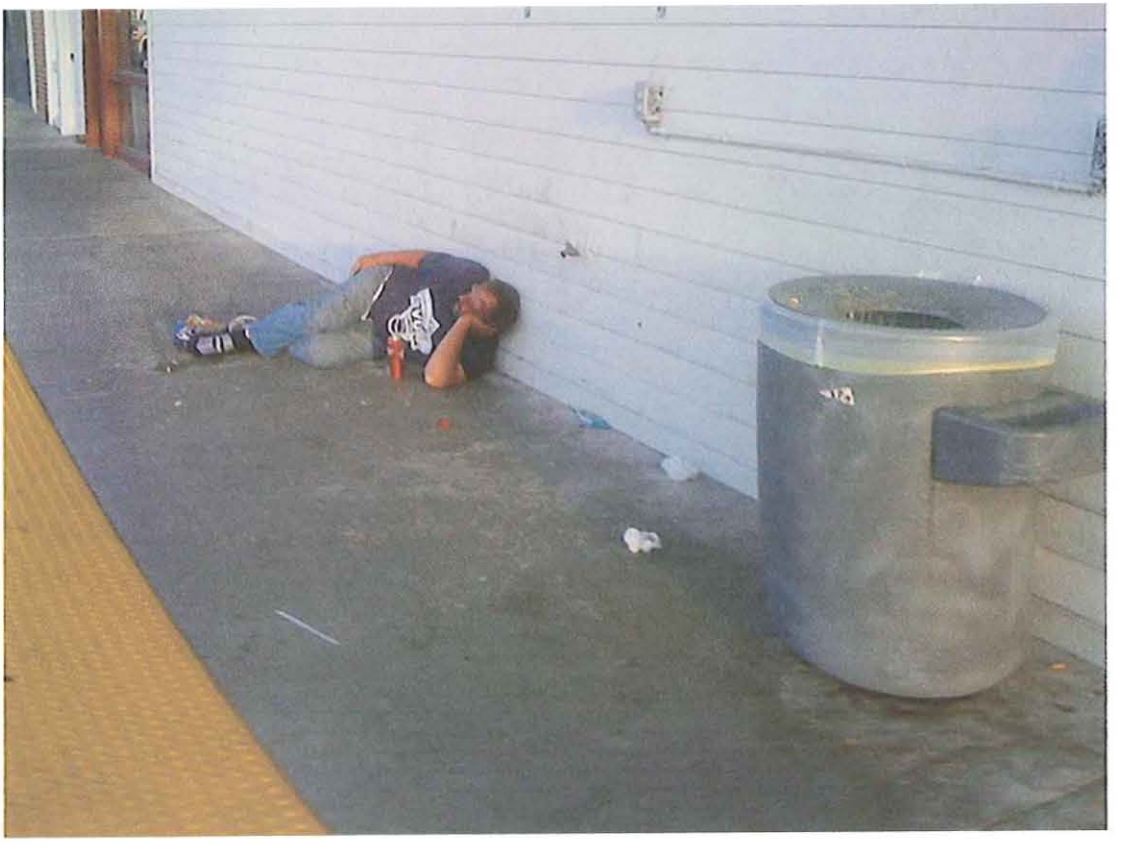

Materials Recieved
Item No. 4d
Zoning Code Implementation
Review Authority for Alcohol Sales
In-Lieu parking Fee

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